

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL
RAILROAD AND FINANCIAL NEWSPAPER.

MACHINERY AS AN INVESTMENT.

It is stated upon excellent authority that the Southern cotton manufacturers are much more progressive in this important matter of machinery and methods than the Northern. Although in many instances their mills have only been in operation twelve to fifteen years, they have in that time made many changes from the original machinery. They are prompt to recognize the advantages of improved machines, and do not hesitate to assume an outlay for them. The results are quickly demonstrated. Production is increased and cost reduced. These are the prime factors in successful manufacturing. Where they are in evidence the ledger balance at the end of the year is always on the right side. New England's mills would find it money in their pockets if they were to borrow the funds necessary to re-equip, and, by means of improved looms, reduce the cost of output and at the same time largely increase the production. Money is cheap at legal rates when it can be turned over to such uses.—Dry Goods Chronicle.

THE FULL TABLE OF CONTENTS WILL BE FOUND ON PAGE 260.

VOL. XXXIII
No. 15.

\$4.00 per year.
Single Copy
10 Cents.

Baltimore, May 6, 1898.

The Westinghouse Air-Brake Company

is now prepared to fill orders at an hour's notice for one or one thousand sets of **Air-Brakes for Freight Cars**, having at their new works an annual capacity for turning out air-brakes for

250,000 Freight Cars
6,000 Passenger Cars
10,000 Locomotives

Besides repairs for the 613,000 **Freight and Passenger Cars** and 31,500 **Locomotives** already equipped by

The Westinghouse Air-Brake Company



OLD METHOD.



NEW METHOD.—Patented May 22, 1891.

The Fox Portable Elevator & Rack Co.

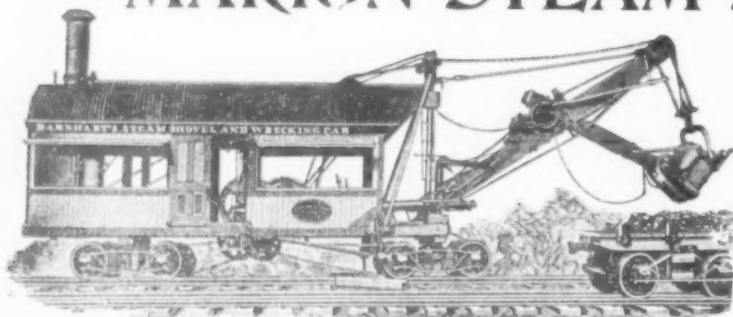
Office: 120, 122 Liberty Street, NEW YORK.

Compare the two methods
and figure on . .

1. Labor.
2. Storage Capacity.
3. Chances of leakage.
4. Ease of inspection.
5. Ability of removing individual barrel.

THE MARION STEAM SHOVEL CO.

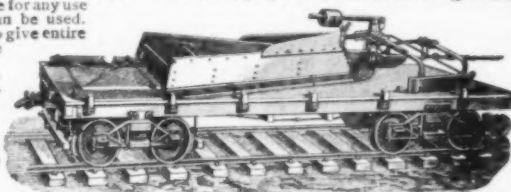
601 WEST CENTRE STREET,
MARION, OHIO.



Manufacturers of
Barnhart's Steam Shovels, Dredges, Ditching Dredges, Railroad Ditchers, Wreckers, Ballast
Unloaders, etc. Our Steam Shovels are largely used on Railroads and by Contractors, Brick Man-
ufacturers, and in excavating Iron Ore, Handling Stock Ore, Stripping Coal Fields and Stone Quarries,
and are a most desirable machine for any use
where excavating machinery can be used.
All of our machinery guaranteed to give entire
satisfaction; otherwise may be
returned at our expense.
For Illustrated Catalogue, Pho-
tographs, and any other informa-
tion desired, address the

Marion Steam Shovel Co.

601 West Centre Street,
MARION, OHIO.



Barnhart's Ballast Unloader; no center rib or leader is required.

BRICK and CLAY-WORKING Machinery

Steam or Horse-Power.

BRICK MACHINES.

GEORGE CARNELL, 1019-1021 Germantown Ave., cor. 5th.

PHILADELPHIA, PA.

Send for Illustrated Catalogue of Everything a Brickmaker Needs.

THE HENRY MARTIN BRICK MACHINE MFG. CO.

LANCASTER, PA.

1897

1897



Ja
Ch
V
H
W
C
S
H
E
I
R
S
R
T
M
F
T
J
M
C
I
I

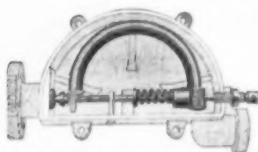
CLASSIFIED INDEX OF ADVERTISERS.

For ALPHABETICAL INDEX See Page 262.

- Acid Chambers.**
James Robertson Mfg. Co., Baltimore, Md.
Caroline Iron Works, Baltimore, Md.
Valk & Murdoch Iron Wks., Charleston, S. C.
- Agricultural Implements.**
Hench & Dromgold, York, Pa.
- Air Brakes.**
Westinghouse Air Brake Co., Pittsburg, Pa.
- Air Compressors.**
Clayton Air Compressor Works, New York.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
Hall Steam Pump Co., Pittsburg, Pa.
H. B. Smith Machine Co., Smithville, N. J.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
Ingersoll-Sergeant Drill Co., New York, N. Y.
Rand Drill Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
- Anti-Friction Metals.**
F. E. Reed Co., Worcester, Mass.
Theo. Hertz & Son, St. Louis, Mo.
More, Jones & Co., St. Louis, Mo.
Bailey-Lebby Co., Charleston, S. C.
- Antimony.**
Theo. Hertz & Son, St. Louis, Mo.
- Architects.**
Towers & Wallace, Holyoke, Mass.
John McDonald & Sons, Austin, Texas.
Frank P. Milburn, Charlotte, N. C.
Hales & Baillinger, Philadelphia, Pa.
James Stewart & Co., St. Louis, Mo.
C. R. Makepeace & Co., Providence, R. I.
- Architectural Iron Work.**
Norris, Burnham & Co., Inc., Glen Rock, Pa.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.
T. H. Brooks & Co., Cleveland, O.
- Artisan Well Tools and Supplies.**
[See Well Tools and Supplies.]
- Asbestos.**
H. W. Johns Manufacturing Co., New York.
Empire Paint & Roof. Co., Philadelphia, Pa.
- Asphalt Pavements.**
Barber Asphalt Paving Co., New York, N. Y.
Warren Chem. & Mfg. Co., New York, N. Y.
National Roofing & Sup. Co., Louisville, Ky.
- Attorney and Counsellor-at-Law.**
Interstate Law Assn., Charleston, W. Va.
J. A. Thayer & Co., Charleston, W. Va.
Robt. W. Grasty, Atlanta, Ga.
- Babbitt Metal.** [See Anti-Friction Metal.]
- Bags, Rope and Twine.**
Royal Bag Mfg. Co., Charleston, S. C.
John T. Bailey & Co., Philadelphia, Pa.
- Bankers and Brokers.**
Hambleton & Co., Baltimore, Md.
North American Trust Co., New York, N. Y.
Maryland Casualty Co., Baltimore, Md.
F. M. Stafford & Co., Chattanooga, Tenn.
Maryland Trust Co., Baltimore, Md.
Exchange Bkg. & Trust Co., Charleston, S. C.
John L. Williams & Sons, Richmond, Va.
Middendorf, Oliver & Co., Baltimore, Md.
- Barrel Mch'y.** [See Woodworking Mch'y.]
- E. & B. Holmes Mach'y Co., Buffalo, N. Y.**
- Bars, Billets.** (Soft Steel.)
Aetna Stand. Iron & Steel Co., Bridgeport, O.
- Bearings.**
Graphite Lubricating Co., Bound Brook, N. J.
Holmes Fibre Graphite Mfg. Co., Phila., Pa.
N. Amer. Metal Co., Long Island City, N. Y.
- Belting.**
Hammacher, Schlemmer & Co., New York.
The Bradford Belting Co., Cincinnati, O.
Eureka Fire Hose Co., New York, N. Y.
J. E. Rhoads & Sons, Wilmington, Del.
Chicago Belting Co., Chicago, Ill.
Alexander Bros., Philadelphia, Pa.
Chenapenke Belting Co., Baltimore, Md.
Jewell Belting Co., Hartford, Conn.
I. B. Williams & Sons, Dover, N. H.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Chas. A. Schieren & Co., New York, N. Y.
Boston Belting Co., Boston, Mass.
E. M. Freese & Co., Galton, O.
Cameron & Barkley Co., Charleston, S. C.
Main Belting Co., Philadelphia, Pa.
Gandy Belting Co., Baltimore, Md.
H. W. Caldwell & Son Co., Chicago, Ill.
American Supply Co., Providence, R. I.
- Belting. (Chain.)**
H. W. Caldwell & Son Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Eng'g Co., Nicetown (Phila.), Pa.
- Belt Lacing and Fasteners.**
Sawyer Hard. & Sup. Co., Pawtucket, R. I.
J. M. Hayden & Co., Grand Rapids, Mich.
American Supply Co., Providence, R. I.
Samson Steel Belt Hook Co., Phila., Pa.
- Belt Preserver.**
J. E. Rhoads & Sons, Wilmington, Del.
- Bicycles.**
Pope Manufacturing Co., Hartford, Conn.
Y. A. Mead Cycle Co., Chicago, Ill.
Maryland Mfg. & Const. Co., Baltimore, Md.
- Bicycle Machinery and Tools.** [See Tools.]
- Blower. (Argand Steam.)**
McClave, Brooks & Co., Scranton, Pa.
- Blowers and Exhaust Fans.**
R. F. Sturtevant Co., Boston, Mass.
Buffalo Forge Co., Buffalo, N. Y.
- Boiler Appliances.**
A. A. Griffing Iron Co., New York, N. Y.
Crosby St. Gate & Valve Co., Boston, Mass.
- Boiler Fronts and Fittings.** [See Boilers.]
- Boilers.** [See Machinery.]
A. A. Griffing Iron Co., New York, N. Y.
Muirhead Machine Works, Pittston, Pa.
The Murray Iron Works Co., Burlington, Ia.
Ames Iron Works, Oswego, N. Y.
Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.
Standard Saw Mill Mach'y. Co., Erie, Pa.
S. L. Holt & Co., Boston, Mass.
The Means & Fulton Iron Works, Birmingham, Ala.
The Globe Machine Works, Cincinnati, O.
Maryland Mfg. & Const. Co., Baltimore, Md.
York Mfg. Co., York, Pa.
Ritter-Conley Co., Pittsburg, Pa.
Wallace Stebbins, Baltimore, Md.
Valdosta Fdy. & Mch. Co., Valdosta, Ga.
Roomell, Schmidt & Co., Ltd., York, Pa.
A. B. Farquhar Co., Ltd., York, Pa.
- Robt. Wetherill & Co., Chester, Pa.**
Alabama Bridge & Bolt Co., Birmingham, Ala.
Hartley's Boiler Works, Montgomery, Ala.
Birmingham Boiler Wks., Birmingham, Ala.
Struthers, Wells & Co., Warren, Pa.
E. Keeler Co., Williamsport, Pa.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.
James Leffel & Co., Springfield, O.
Pittsburg Locomotive Works, Pittsburg, Pa.
Smith-Courtney Co., Richmond, Va.
The Bailey-Lebby Co., Charleston, S. C.
Union Iron Works Co., Selma, Ala.
Charlotte Machine Co., Charlotte, N. C.
Mecklenburg Iron Works, Charlotte, N. C.
S. C. Forsyth Mch. Co., Manchester, N. H.
Cameron & Barkley Co., Charleston, S. C.
Babcock & Wilcox Co., New York, N. Y.
Tudor Roller Mfg. Co., Cincinnati, O.
Valk & Murdoch Iron Wks., Charleston, S. C.
Frick Co., Waynesboro, Pa.
M. Zier & Co., New Albany, Ind.
- Bolts, Rivets and Nuts.**
Hammacher, Schlemmer & Co., New York.
Parkhurst Bros. & Co., Indianapolis, Ind.
Philadelphia Mch. Screw Wks., Phila., Pa.
Hoopes & Townsend, Philadelphia, Pa.
- Brass Goods.**
The Tampograph Co., Wilmington, Del.
A. A. Griffing Iron Co., New York, N. Y.
The Lunkenheimer Co., Cincinnati, O.
The Ludlow-Saylor Wire Co., St. Louis, Mo.
Chas. H. Bealy & Co., Chicago, Ill.
Bailey-Lebby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, O.
- Brick.**
The Powhatan Clay Mfg. Co., Richmond, Va.
- Brick and Clayworking Machinery and Supplies.**
The Henry Martin Brick Mfg. Co., Lancaster, Pa.
J. C. Steele & Sons, Stateville, N. C.
George Cornell, Philadelphia, Pa.
E. M. Freese & Co., Galton, O.
- Bridges.**
Janney, Steinmetz & Co., Philadelphia, Pa.
Alabama Bridge & Bolt Co., Birmingham, Ala.
- Buckets. (Self-dumping Coal and Ore.)**
R. D. Seldel, Reading, Pa.
G. L. Stuebner Iron Wks., L. Island City, N. Y.
- Building Stone.**
T. L. Fossick Co., Sheffield, Ala.
- Burials.**
Royal Bag Mfg. Co., Charleston, S. C.
John T. Bailey & Co., Philadelphia, Pa.
- Cannmakers' Machinery.**
Niagara Machine & Tool Wks., Buffalo, N. Y.
Toledo Machine & Tool Co., Toledo, O.
Maryland Mfg. & Const. Co., Baltimore, Md.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
- Canning Machinery.**
Niagara Machine & Tool Wks., Buffalo, N. Y.
A. K. Robins & Co., Baltimore, Md.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
- Capstans. (Hand and Steam.)**
American Ship Windlass Co., Providence, R. I.
- Carbon Black Diamonds. (For Diamond Drills.)**
The S. Dessau Co., New York, N. Y.
- Card Clothing.**
American Supply Co., Providence, R. I.
- Cars. (Mine and Dump.)**
Jackson Manufacturing Co., Harrisburg, Pa.
G. L. Stuebner Iron Wks., L. Island City, N. Y.
Climax Mfg. Co., Corry, Pa.
Birmingham Boiler Wks., Birmingham, Ala.
Geo. Peacock, Selma, Ala.
- Cars. (Passenger and Freight.)** [See Railroad Equipment and Supplies.]
- Car Couplers.**
Chester Steel Castings Co., Philadelphia, Pa.
- Car Seals. (Lead.)**
Theo. Hertz & Son, St. Louis, Mo.
- Car Springs.**
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Boston Belting Co., Boston, Mass.
- Car Wheels and Axles.**
Lobdell Car Wheel Co., Wilmington, Del.
Geo. Peacock, Selma, Ala.
- Castings. (Brass and Bronze.)**
The Lunkenheimer Co., Cincinnati, O.
Newburgh Ice Machine & Engine Co., Newburgh, N. Y.
- Castings. (Copper.)**
Mitchell Tempered Copper Co., Corry, Pa.
- Castings. (Crucible Chrome Steel.)**
Chrome Steel Works, Brooklyn, N. Y.
- Castings. (Iron.)**
A. A. Griffing Iron Co., New York, N. Y.
High Point Mch. Works, High Point, N. C.
The Vulcan Works, Chester, Pa.
The New Columbus Bridge Co., Columbus, O.
K. D. Wood & Co., Philadelphia, Pa.
Newburgh Ice Machine & Engine Co., Newburgh, N. Y.
McLannahan & Stone, Hollidaysburg, Pa.
- Castings. (Malleable Iron and Steel.)**
Chester Steel Castings Co., Chester, Pa.
- Ceilings.**
Cincinnati Corrugating Co., Piqua, O.
- Cement.**
Maryland Cement Co., Baltimore, Md.
Austin White Lime Co., Austin, Texas.
Southeastern Lime & C. Co., Charleston, S. C.
Wm. M. Bird & Co., Charleston, S. C.
Commercial Wood & Cement Co., Phila., Pa.
C. M. Gilbert & Co., Savannah, Ga.
- Chains.**
The Jeffrey Mfg. Co., Columbus, O.
- Chemists.**
J. Ross Hanahan, Charleston, S. C.
Otto Meyer, Richmond, Va.
Lucius P. Brown, Nashville, Tenn.
R. Dunbar & Son, Buffalo, N. Y.
N. P. Pratt Laboratory, Atlanta, Ga.
Dr. Henry Froehling, Richmond, Va.
John Sanderson, Middlesborough, Ky.
- Chucks.**
Morris Twist Drill & Mch. Co., New Bedford, Mass.
Skinner Chuck Co., New Britain, Conn.
Chas. H. Bealy & Co., Chicago, Ill.
- Clamps.**
Chas. H. Bealy & Co., Chicago, Ill.
- Clocks. (Watchman's and Town.)**
Fairmount Mch. Co., Philadelphia, Pa.
Chas. H. Bealy & Co., Chicago, Ill.
- Clutches. (Friction.)**
Christiana Machine Co., Christiana, Pa.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
- Coal.**
Davis Coal & Coke Co., Philadelphia, Pa.
The Standard Coal Co., Brookwood, Ala.
Castner, Curran & Bullitt, Philadelphia, Pa.
- Coke.**
Davis Coal & Coke Co., Philadelphia, Pa.
The Standard Coal Co., Brookwood, Ala.
- Commutator Bars and Segments.**
F. E. Homer & Co., Cleveland, O.
Mitchell Tempered Copper Co., Corry, Pa.
- Contractors. (Railway.)**
Charles McFadden, Jr., Philadelphia, Pa.
G. W. Chance, Philadelphia, Pa.
Smethurst & Allen, Philadelphia, Pa.
- Contractors and Builders.**
C. H. Norton, Durham, N. C.
Guilford & Blanc, New Iberia, La.
John McDonald & Sons, Austin, Texas.
Wm. A. Chapman & Co., Providence, R. I.
James Stewart & Co., St. Louis, Mo.
- Contractors and Builders' Supplies.**
Guilford & Blanc, New Iberia, La.
Ritter-Conley Co., Pittsburg, Pa.
Wrightsville Hardware Co., Wrightsville, Pa.
Sam'l H. French & Co., Philadelphia, Pa.
- Contractors. (Prospecting.)**
H. P. Simpson, Scranton, Pa.
- Contractors' Machinery and Supplies. [See Hoisting Machinery.]**
Lambert Hoisting Eng. Co., Newark, N. J.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Geo. Peacock, Selma, Ala.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Marion Steam Shovel Co., Marion, O.
- Conveying Machinery.**
Brown Holst. & Con. Mch. Co., Cleveland, O.
W. J. Clark Co., Salem, O.
Walker & Elliott, Wilmington, Del.
H. W. Caldwell & Son Co., Chicago, Ill.
McLannahan & Stone, Hollidaysburg, Pa.
The Jeffrey Mfg. Co., Columbus, O.
Link-Belt Eng'g Co., Nicetown (Phila.), Pa.
- Copper.**
Theo. Hertz & Son, St. Louis, Mo.
- Coppersmiths.**
Birmingham Boiler Works, Birmingham, Ala.
- Corn Mill Machinery.**
J. R. Alsing Co., New York, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
B. F. Starr & Co., Baltimore, Md.
Sturtevant Mill Co., Boston, Mass.
- Corrugated Iron. [See Roofing and Siding.]**
Eureka Fire Hose Co., New York, N. Y.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Boston Belting Co., Boston, Mass.
- Cotton Compresses.**
The Vulcan Works, Chester, Pa.
- Cotton Gin Machinery.**
Carter Cot. Gin Co., E. Bridgewater, Mass.
Valk & Murdoch Iron Wks., Charleston, S. C.
- Cotton Mill Mch'y. [See Textile Mch'y.]**
Fairmount Machine Co., Philadelphia, Pa.
J. A. Gowdey & Son, Providence, R. I.
Crompton & Knowles Loom Works, Worcester, Mass.
Cohoes Iron Fdy. & Mch. Co., Cohoes, N. Y.
Curtis & Marble Mch. Co., Worcester, Mass.
Mason Machine Works, Taunton, Mass.
Charlotte Machine Co., Charlotte, N. C.
Kilburn, Lincoln & Co., Fall River, Mass.
Lowell Machine Shop, Boston, Mass.
American Supply Co., Providence, R. I.
Draper Co., Hopedale, Mass.
Whitinsville Spin. Ring Co., Whitinsville, Mass.
Pettee Mch. Wks., Newton Upper Falls, Mass.
Providence Machine Co., Providence, R. I.
Easton & Burnham Mch. Co., Pawtucket, R. I.
- Cottonseed-Oil Machinery.**
J. R. Alsing Co., New York, N. Y.
G. H. Bushnell Press Co., Thompson's, Conn.
Sturtevant Mill Co., Boston, Mass.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
Buckeye Iron and Brass Works, Dayton, O.
Carter Cot. Gin Co., E. Bridgewater, Mass.
Cardwell Machine Co., Richmond, Va.
- Cottonseed Products.**
American Cotton Oil Co., New York, N. Y.
Covers. (Gutter and Inlet.)
George M. Pierce, Cleveland, O.
- Covering. (Asbestos Magnesite for Pipe and Boilers.)**
A. A. Griffing Iron Co., New York, N. Y.
H. W. Johns Manufacturing Co., New York.
Valk & Murdoch Iron Wks., Charleston, S. C.
- Covers. (Rollers and Clearers.)**
American Supply Co., Providence, R. I.
- Cranes. (Traveling.)**
The Case Manufacturing Co., Columbus, O.
Brown Holst. & Con. Mch. Co., Cleveland, O.
- Cranks.**
Chester Steel Castings Co., Philadelphia, Pa.
- Creosoted Lumber.**
West Pascagoula Creosote Works, West Pascagoula, Fla.
Fernandina Oil & Creosote Wks., Fernand, Fla.
- Crucibles.**
R. B. Seldel, Philadelphia, Pa.
- Crushers. (Corn and Cob.)**
Munson Bros., Utica, N. Y.
The Foss Mfg. Co., Springfield, O.
- Crushing and Pulverizing Mch'y.**
J. S. & G. F. Simpson, Brooklyn, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
Sturtevant Mill Co., Boston, Mass.
Foss Mfg. Co., Springfield, O.
Bradley Pulverizer Co., Boston, Mass.
J. R. Alsing Co., Inc., New York, N. Y.
Walker & Elliott, Wilmington, Del.
James Murray & Son, Baltimore, Md.
- Dado Heads.**
Hutter Bros., Rochester, N. Y.
- Die Forgings and Castings.**
Chrome Steel Works, Brooklyn, N. Y.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
- Dies for Sheet-Metal Workers.**
The Tampograph Co., Wilmington, Del.
Niagara Machine & Tool Wks., Buffalo, N. Y.
Toledo Machine & Tool Co., Toledo, O.
The E. S. Stiles Press Co., Watertown, N. Y.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
Chas. H. Bealy & Co., Chicago, Ill.
- Door Hangers. (Trolley Track.)**
Cronk Hanger Co., Elmira, N. Y.
Coburn Trk. Trk. Mfg. Co., Holyoke, Mass.
- Dredges and Excavators.**
Marion Steam Shovel Co., Marion, O.
- Drills. (Prospecting.)**
H. P. Simpson, Scranton, Pa.
Muirhead Machine Works, Pittston, Pa.
American Diamond Rock Drill Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
- Drills. (Rock.)**
American Diamond Rock Drill Co., New York.
Sullivan Machinery Co., Chicago, Ill.
Rand Drill Co., New York, N. Y.
Ingersoll-Sergeant Drill Co., New York, N. Y.
- Drills. (Twist.)**
Standard Tool Co., Cleveland, O.
Morris Twist Drill & Mch. Co., New Bedford, Mass.
- Drilling Machines.**
The Davis & Egan Mch. Tool Co., Cincinnati, O.
H. P. Simpson, Scranton, Pa.
Muirhead Machine Works, Pittston, Pa.
The Globe Machine Works, Cincinnati, O.
W. F. & Jno. Barnes Co., Rockford, Ill.
Draper Mch. Tool Co., Worcester, Mass.
- Dry-Kills.**
The A. H. Andrews Co., Chicago, Ill.
Sturtevant Mill Co., Boston, Mass.
- Drying Machinery.**
J. R. Alsing Co., New York, N. Y.
R. F. Sturtevant Co., Boston, Mass.
R. Dunbar & Son, Buffalo, N. Y.
The Jeffrey Mfg. Co., Columbus, O.
The Bailey-Lebby Co., Charleston, S. C.
- Dust-Collecting System.**
B. F. Sturtevant Co., Boston, Mass.
- Dyestuffs and Chemicals.**
A. Kilpstein & Co., New York.
- Ejectors.**
Henry B. Pancoast & Co., Philadelphia, Pa.
- Electric Power.**
L. H. Chappell, Mayor, Columbus, Ga.
Columbia Water Power Co., Columbia, S. C.
- Electric-Light and Power Plants.**
Triumph Electric Co., Cincinnati, O.
Northern Electric Mfg. Co., Madison, Wis.
The Electrical Engineering & Supply Co., Charlotte, N. C.
Maryland Mfg. & Const. Co., Baltimore, Md.
The United Electrical Imp. Co., Phila., Pa.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Card Electric Co., Mansfield, O.
Chas. E. Gregory Co., Chicago, Ill.
American Engine Co., Bound Brook, N. J.
Smethurst & Allen, Philadelphia, Pa.
Shawhan-Thresher Electric Co., Dayton, O.
Fort Wayne Elec. Corp'n, Fort Wayne, Ind.
Commercial Electric Co., Indianapolis, Ind.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
- Electric Railway Equipment.**
Triumph Electric Co., Cincinnati, O.
The Electrical Engineering & Supply Co., Charlotte, N. C.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
Shawhan-Thresher Electric Co., Dayton, O.
- Electrical Supplies.**
Triumph Electric Co., Cincinnati, O.
Crouse-Hinds Electric Co., Syracuse, N. Y.
Northern Electric Mfg. Co., Madison, Wis.
The Bradford Belting Co., Cincinnati, O.
B. F. Sturtevant Co., Boston, Mass.
The Electrical Engineering & Supply Co., Charlotte, N. C.
Maryland Mfg. & Const. Co., Baltimore, Md.
The United Electrical Imp. Co., Phila., Pa.
The Cornman Co., Cleveland, O.
Stanley Electric Mfg. Co., Pittsfield, Mass.
Card Electric Co., Mansfield, O.
Western Electrical Sup. Co., St. Louis, Mo.
Chas. E. Gregory Co., Chicago, Ill.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
Shawhan-Thresher Electric Co., Dayton, O.
- Elevators.**
The Lane & Bodley Co., Cincinnati, O.
Parkhurst Bros. & Co., Indianapolis, Ind.
Fairmount Machine Co., Philadelphia, Pa.
James Bates's Sons, Baltimore, Md.
Morris, Williams & Co., Philadelphia, Pa.
- Elevator. (Portable and Barrel Racks.)**
Fox Portable Elev. & Rack Co., New York, N. Y.
- Emery.**
The Tanite Co., Stroudsburg, Pa.
The Carborundum Co., Niagara Falls, N. Y.
- Emery Wheels. [See Grinding and Polishing Machinery.]**
- Elevator Enclosures and Cabs.**
The Ludlow-Saylor Wire Co., St. Louis, Mo.
Dufur & Co., Baltimore, Md.
Dow Wire Works Co., Louisville, Ky.
- Engineers. (Consulting, Contracting & Mining.)**
Henry E. Knox, Jr., Charlotte, N. C.
Chas. A. M. Pray & Co., Providence, R. I.
G. W. Chance, Philadelphia, Pa.
Franklin F. Davis, Atlanta, Ga.
Geo. F. Glarkin & Co., Atlanta, Ga.
Thorburn Reid, New York, N. Y.
S. J. Macfarren, Pittsburg, Pa.
John Muirhead, Pittston, Pa.
Ritter-Conley Co., Pittsburg, Pa.
Edw. E. Erikson, Pittsburg, Pa.
Lathbury & Spackman, Philadelphia, Pa.
The Electrical Engineering Supply Co., Charlotte, N. C.
Tower & Wallace, Holyoke, Mass.
B. C. Howard, Baltimore, Md.
John McDonald & Sons, Austin, Texas.
The Hutton Engineering Co., Lexington, Va.
Alber & Byrne, Birmingham, Ala.
J. M. Wilkinson Mfg. Co., Bridgeport, Pa.
Watkins & Hardaway, Birmingham, Ala.
N. P. Pratt Laboratory, Atlanta, Ga.
- Engines. [See Machinery.]**
The Lane & Bodley Co., Cincinnati, O.
Muirhead Machine Works, Pittston, Pa.
Chambersburg Eng. Co., Chambersburg, Pa.
The Murray Iron Works Co., Burlington, Ia.
Middletown Machine Co., Middletown, O.
High Point Mch. Works, High Point, N. C.

The Fifth Ton Free

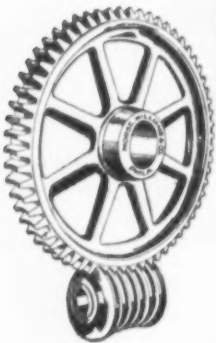
Save 20% to 30% of the coal used—easy enough to do—proof if you want it. The genuine "Heintz" Steam Trap (there are about four surviving out of a hundred imitations—look out for them when you buy) makes waste of steam impossible. Successful working not dependent on floats, clock-work or springs. Expansion of fluid in a sealed tube closes the valve at 212°. So simple that it's practical. Been so for twenty-three years. 60,000 in use—ask for one yourself on thirty days' trial. Booklet "J" quite interesting. Want it?



William S. Haines
Company,

136 South Fourth Street,
Philadelphia.

"The Heintz—the best—tho' it has imitators."



HINDLEY WORM GEARING

Manufactured by

MORSE, WILLIAMS & CO.

PHILADELPHIA, PA., U. S. A.

SEND FOR CATALOGUE AND PRICES.

THE CLEVELAND WIRE SPRING CO., Cleveland, Ohio.

Oil Tempered
Steel Springs
for all purposes
a specialty.



Upholstery,
Lounge,
Bed and Chair
Springs, etc.

PAT. STEEL WIRE PIPE BENDERS.

PAT. STEEL WALL TIES.

CRUCIBLES, Stoppers and Nozzles,
R. B. SEIDEL,
1324-1334 Callowhill St Philadelphia, Pa.



METALS PERFORATED AS REQUIRED FOR

SCREENS OF ALL KINDS

AND FOR USE IN

Milling and Mining Machinery
Reduction and Concentrating Works
Woolen, Cotton, Paper and Pulp Mills
Rice, Flour and Cottonseed Oil Mills
Sugar and Malt Houses
Distilleries, Filter Presses

Stone, Coal and Ore Screens
Stamp Battery Screens
Brick and Tile Works, Filters
Spark Arresters, Gas and Water Works
Oil, Gas and Vapor Stoves
Coffee Machinery, etc., etc.

Standard Sizes Perforated Tin and Brass Always in Stock.

Main Office and Works: 234 to 236 North Union Street, Chicago, Ill., U.S.A.
Eastern Office: No. 284 Pearl Street, New York



"Sure Cure for Steam, Water and Fuel Wastage."



Steam and Oil Separators.
Feed Water Heaters.
Safety Water Columns.

Steam Traps.
Gravity Pumps.
Exhaust Heads.

A. A. GRIFFING IRON CO.

66-68 CENTRE STREET, NEW YORK.
PHILADELPHIA. BOSTON. JERSEY CITY, N. J.
Send for Book M R on "POWER ECONOMY."

BUILDERS OF PLAIN AND FANCY LOOMS

CROMPTON & KNOWLES

WORCESTER, MASS.

FOR WEAVING EVERY KNOWN TYPE OF TEXTILE FABRIC.

BRANCH WORKS, PROVIDENCE, R. I.

Conveying, Elevating and Power-Transmitting Machinery

H. W. CALDWELL & SON CO.

SPECIALTIES FOR COTTONSEED-OIL MILLS,
FLOUR AND RICE MILLS,
AND GRAIN ELEVATORS.

GENERAL MACHINISTS,

127, 129, 131, 133 West Washington St.
CHICAGO.

CALDWELL

STEEL CONVEYOR.

Manufactured exclusively by us at Chicago, with latest improvements.



CALDWELL CORRUGATED SEAMLESS
STEEL ELEVATOR BUCKETS.

LINK BELTING.
SPROCKET WHEELS.
COTTON BELTING.
RUBBER BELTING.
LEATHER BELTING.
BELT CLAMPS.
POWER GRAIN SHOVELS.
ELEVATOR BOLTS.
ELEVATOR BUCKETS.
CONCRETE MIXERS.

FRICTION CLUTCHES
JAW CLUTCHES.
COUPLINGS.
FLEXIBLE SPOUTS.
GEARING (all kinds).
GRAIN SCOOPS.
ELEVATOR BOOTS.
COGSWELL MILLS.
HANGERS.
PERFORATED METALS.

PILLOW BLOCKS.
IRON PULLEYS.
WOOD PULLEYS.
SHAFTING.
SET COLLARS.
SWIVEL SPOUTS.
TAKE-UP BOXES.
TURN HEAD SPOUTS.
WIRE CLOTH.



CLASSIFIED INDEX OF ADVERTISERS.

For ALPHABETICAL INDEX See Page 262.

The Vulcan Works, Chester, Pa.
Ames Iron Works, Oswego, N. Y.
Frontier Iron Works, Detroit, Mich.
Standard Saw Mill Machy. Co., Erie, Pa.
S. L. Holt & Co., Boston, Mass.
Wallace Stebbins, Baltimore, Md.
B. F. Sturtevant Co., Boston, Mass.
The Globe Machine Works, Cincinnati, O.
Maryland Mfg. & Const. Co., Baltimore, Md.
York Mfg. Co., York, Pa.
Buckeye Engine Co., Salem, O.
A. R. Farquhar Co., Ltd., York, Pa.
Robt. Wetherill & Co., Chester, Pa.
American Engine Co., Bound Brook, N. J.
Buffalo Forge Co., Buffalo, N. Y.
Westinghouse Machine Co., Pittsburg, Pa.
The Ball Engine Co., Erie, Pa.
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.
Struthers, Wells & Co., Warren, Pa.
W. D. Forbes & Co., Hoboken, N. J.
Newburg Ice Machine & Engine Co., Newburgh, N. Y.
James Lefell & Co., Springfield, O.
Smith-Courtney Co., Richmond, Va.
Lidgerwood Mfg. Co., New York, N. Y.
Union Iron Works Co., Selma, Ala.
The Bailey-Lebby Co., Charleston, S. C.
Charlotte Machine Co., Charlotte, N. C.
Mecklenburg Iron Works, Charlotte, N. C.
Remington Machine Co., Wilmington, Del.
Cameron & Barkley Co., Charleston, S. C.
S. C. Forsyth Mch. Co., Manchester, N. H.
Frick Co., Waynesboro, Pa.
Valk & Murdoch Iron Wks., Charleston, S. C.
Engines. (Gas and Gasoline.)
Lambert Gas & Gaso. Eng. Co., Anderson, Ind.
Frontier Iron Works, Detroit, Mich.
Columbus Machine Co., Columbus, O.
J. Thompson & Sons' Mfg. Co., Beloit, Wis.
Springfield Gas Engine Co., Springfield, O.
J. W. Ruger & Co., Buffalo, N. Y.
Otto Gas Engine Works, Philadelphia, Pa.
Engines. (Oil.)
Priestman & Co., Inc., Philadelphia, Pa.
Engravers.
Brown-Bierce Co., Dayton, O.
Baltimore Engraving Co., Baltimore, Md.
Envelopes.
Atlanta Envelope Co., Atlanta, Ga.
Exhaust Heads.
A. A. Griffing Iron Co., New York, N. Y.
Fans. (Electric Ceiling.)
Robbins & Meyers Co., Springfield, O.
Fans. (Ventilating.)
B. F. Sturtevant Co., Boston, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Feed Water Heaters.
A. A. Griffing Iron Co., New York, N. Y.
Frontier Iron Works, Detroit, Mich.
S. L. Holt & Co., Boston, Mass.
Pittsburg Feed-Water Heater & Engineering Co., Pittsburg, Pa.
Warren Webster & Co., Camden, N. J.
Jas. Berryman, Philadelphia, Pa.
National Pipe Bend. Co., New Haven, Conn.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
Feltting. (Hair.)
Baeder, Adams & Co., Philadelphia, Pa.
Fenestals.
Ellis & Helfenberger, Indianapolis, Ind.
Dow Wire Works Co., Louisville, Ky.
Dufur & Co., Baltimore, Md.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Fertilizer Machinery.
J. R. Aising Co., New York, N. Y.
C. H. Dempwolf & Co., York, Pa.
Foss Mfg. Co., Springfield, O.
Bradley Pulverizer Co., Boston, Mass.
Sturtevant Mill Co., Boston, Mass.
The Bailey-Lebby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Valk & Murdoch Iron Wks., Charleston, S. C.
Walker & Elliott, Wilmington, Del.
Files.
G. & H. Barnett Co., Philadelphia, Pa.
Chas. H. Bealy & Co., Chicago, Ill.
Nicholsen File Co., Providence, R. I.
Fire Brick.
Pomona Terra Cotta Co., Pomona, N. C.
H. Stevens's Sons Co., Macon, Ga.
Powhatan Clay Mfg. Co., Richmond, Va.
Fire Extinguishers.
L. E. Brickenstiel, Salem, N. C.
The Bailey-Lebby Co., Charleston, S. C.
General Fire Exting. Co., Providence, R. I.
Charlotte Machine Co., Charlotte, N. C.
Flour and Grist Mill Machinery and Supplies.
J. R. Aising Co., New York, N. Y.
Norris, Burnham & Co., Inc., Glen Rock, Pa.
Nordyke & Marmon Co., Indianapolis, Ind.
Munson Bros., Utica, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
B. F. Starr & Co., Baltimore, Md.
Sturtevant Mill Co., Boston, Mass.
W. J. Clark Co., Salem, O.
Union Iron Works, Selma, Ala.
Wolf Co., Chambersburg, Pa.
H. W. Caldwell & Son Co., Chicago, Ill.
Flue Cleaners.
Thompson & Bushnell, New York, N. Y.
J. W. Paxson Co., Philadelphia, Pa.
Buffalo Forge Co., Buffalo, N. Y.
Viaduct Brass Works, Cleveland, O.
Forges.
B. F. Sturtevant Co., Boston, Mass.
Forgings. (Steel.)
Janney & Steinmetz, Philadelphia, Pa.
Keystone Drop Forge Co., Philadelphia, Pa.
Foundry Equipments and Supplies.
J. W. Paxson & Co., Philadelphia, Pa.
Fuel Economizers.
Broomell, Schmidt & Co., Ltd., York, Pa.
The Fuel Economizer Co., Matteswan, N. Y.
Fuel Gas Producers.
R. D. Wood & Co., Philadelphia, Pa.
Furnace Builders.
Edw. E. Erikson, Pittsburg, Pa.
Miller Bros. & Co., Pittsburg, Pa.
Alabama Bridge & Roll. Co., Birmingham, Ala.
Gages (Recording) and Counters.
Crosby St. Gage & Valve Co., Boston, Mass.
Gas and Steam Fitters' Tools.
Henry B. Panoast & Co., Philadelphia, Pa.
D. Saunders's Sons, Yonkers, N. Y.
Gearing.
Christiana Machine Co., Christiana, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
The Jeffrey Mfg. Co., Columbus, O.

Morse, Williams & Co., Philadelphia, Pa.
Chester Steel Castings Co., Phila., Pa.
Glass. (Art, Stained.)
L. Grosse Art Glass Works, Pittsburg, Pa.
Glass. (Plate.)
Pittsburg Plate Glass Co., Pittsburg, Pa.
Glass. (Floor and Skylight.)
Pittsburg Plate Glass Co., Pittsburg, Pa.
Grates and Grate Bars.
Earl & Wilson, Gastonia, N. C.
Frontier Iron Works, Detroit, Mich.
The Globe Machine Works, Cincinnati, O.
Harley's Boiler Works, Montgomery, Ala.
McClave, Brooks & Co., Scranton, Pa.
Grain Elevator Supplies.
W. J. Clark Co., Salem, O.
H. W. Caldwell & Son Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Eng'g Co., Nicetown (Phila.), Pa.
Graphite.
Graphite Lubricating Co., Bound Brook, N. J.
Holmes Fibre Graphite Mfg. Co., Phila., Pa.
Jos. Dixon Crucible Co., Jersey City, N. J.
Grater. (Household.)
West Manufacturing Co., Buffalo, N. Y.
Grease Cups.
Lunkenheimer Co., Cincinnati, O.
Grinding and Polishing Mch.
The Carborundum Co., Niagara Falls, N. Y.
Hanson & Van Winkle Co., Newark, N. J.
Hammacher, Schlemmer & Co., New York.
The Tanite Co., Stroudsburg, Pa.
Scranton Corundum & Emery Wheel Works, Scranton, Pa.
C. N. Cady, Canastota, N. Y.
Vitrified Wheel Co., Westfield, Mass.
Sterling Emery Wheel Co., Tiffin, O.
Norton Emery Wheel Co., Worcester, Mass.
Groovers.
Huther Bros., Rochester, N. Y.
Gymnasium and Athletic Supplies.
A. J. Alford Sporting Goods Co., Balto., Md.
Hammers. (Steam and Power.)
Toledo Machine & Tool Co., Toledo, O.
The E. S. Stiles Press Co., Watert'n, N. Y.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
J. M. Robinson & Co., Cincinnati, O.
Handle Mch. (See Woodwork's Mch.)
J. A. Fay & Co., Cincinnati, O.
The Egan Co., Cincinnati, O.
Ober Lathe Co., Chagrin Falls, O.
S. C. Forsyth Mch. Co., Manchester, N. H.
Trevor Mfg. Co., Lockport, N. Y.
Hardware Machinery.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
Hardware Specialties.
Chas. H. Bealy & Co., Chicago, Ill.
Standard Tool Co., Cleveland, O.
Wrightsville Hardware Co., Wrights'v., Pa.
W. J. Clark Co., Salem, O.
Cronk Hanger Co., Elmira, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Hardwoods.
A. I. Lyon & Co., Baltimore, Md.
Price & Heald, Baltimore, Md.
Price & Co., Baltimore, Md.
E. D. Albro Co., Cincinnati, O.
Heating Apparatus.
A. A. Griffing Iron Co., New York, N. Y.
L. B. Brickenstiel, Salem, N. C.
Warren Webster & Co., Camden, N. J.
Broomell, Schmidt & Co., Ltd., York, Pa.
The Peck-Hammond Co., Cincinnati, O.
T. H. Brooks & Co., Cleveland, O.
Holding Machinery.
The Case Manufacturing Co., Columbus, O.
The Murray Iron Works Co., Burlington, Ind.
Joseph F. McCoy Co., New York, N. Y.
The Jeffrey Mfg. Co., Columbus, O.
Lambert Holding Eng. Co., Newark, N. J.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Brown Holst & Con. Mch. Co., Cleveland, O.
Lidgerwood Mfg. Co., New York, N. Y.
John F. Byers Machine Co., Ravenna, O.
Sullivan Machinery Co., Chicago, Ill.
Hose.
The Bradford Belting Co., Cincinnati, O.
Eureka Fire Hose Co., New York, N. Y.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Boston Belting Co., Boston, Mass.
Hose. (Cotton.)
Eureka Fire Hose Co., New York, N. Y.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Boston Belting Co., Boston, Mass.
Hose Reel.
The Hartzell Novelty Works, Alliance, O.
Hotels.
New Atlantic Hotel, Norfolk, Va.
Hunting and Sporting Supplies.
A. J. Alford Sporting Goods Co., Balto., Md.
Hydrants.
Chapman Valve Mfg. Co., Indian Orchard, Mass.
Ludlow Valve Mfg. Co., Troy, N. Y.
R. D. Wood & Co., Philadelphia, Pa.
Ice-Making Machinery.
The Vulcan Works, Chester, Pa.
The Murray Iron Works Co., Burlington, Ind.
John Featherstone's Sons, Chicago, Ill.
York Mfg. Co., York, Pa.
The Fred. W. Wolf Co., Chicago, Ill.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
Newburgh Ice Machine & Engine Co., Newburgh, N. Y.
Remington Machine Co., Wilmington, Del.
Frick Co., Waynesboro, Pa.
Ice & Refrigerating Mch. Supplies.
The Klechler Mfg. Co., Cincinnati, O.
The Fred. W. Wolf Co., Chicago, Ill.
Injectors.
The Lunkenheimer Co., Cincinnati, O.
Jenkins Bros., New York, N. Y.
Penberthy Injector Co., Detroit, Mich.
Insurance.
Maryland Casualty Co., Baltimore, Md.
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
Iron.
Janney, Steinmetz & Co., Philadelphia, Pa.
Apollo Iron & Steel Co., Pittsburg, Pa.
Iron Brokers.
Justice Cox, Jr., Philadelphia, Pa.
Edward J. Etting, Philadelphia, Pa.

Iron Buildings and Roofs.
Ritter-Conley Co., Pittsburg, Pa.
James Stewart & Co., St. Louis, Mo.
Iron Chimneys.
M. Zehr & Co., New Albany, Ind.
Struthers, Wells & Co., Warren, Pa.
York Mfg. Co., York, Pa.
Ironworking Machinery.
The American Tool Works Co., Cincinnati, O.
The Means & Fulton Iron Works, Birmingham, Ala.
Toledo Machine & Tool Co., Toledo, O.
The Pratt & Whitney Co., Hartford, Conn.
F. E. Reed Co., Worcester, Mass.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
W. D. Forbes & Co., Hoboken, N. J.
Bradford Mill Co., Cincinnati, O.
Fifield Tool Co., Lowell, Mass.
Chas. H. Bealy & Co., Chicago, Ill.
J. M. Robinson & Co., Cincinnati, O.
Draper Mch. Tool Co., Worcester, Mass.
Niagara Machine & Tool Works, Buffalo, N. Y.
Iron and Steel Plates.
Janney & Steinmetz, Philadelphia, Pa.
Jacks. (Hydraulic-lifting.)
Joseph F. McCoy Co., New York, N. Y.
Knitting Machinery.
Scott & Williams, Philadelphia, Pa.
Branson Machine Co., Philadelphia, Pa.
Knuckles for Car-Couplers.
Chester Steel Castings Co., Philadelphia, Pa.
Labelling Machines.
Burt Labelling Machine Co., Baltimore, Md.
Lamps. (Arc and Incandescent.)
The United Electrical Imp. Co., Phila., Pa.
Fort Wayne Elec. Corp., Fort Wayne, Ind.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
Lands.
Johnston & Nelson, Baltimore, Md.
Sect'y Chamber of Com., Wilmington, N. C.
E. Willis, Charleston, S. C.
Radford Board of Trade, Radford, Va.
A. W. Taylor Land & Lumber Co., Summerville, S. C.
Exchange Bank & Trust Co., Charleston, S. C.
Lathe. (Expanded Metal Steel.)
Southern Expanded Metal Co., Washington, D. C. (See advt. for other addresses.)
Laundry Machinery.
Wilson Laundry Mch. Co., Columbia, Pa.
S. H. Sinclair Co., Chicago, Ill.
Lead. (Sheet.)
James Robertson Mfg. Co., Baltimore, Md.
Lead and Tin. (Pig.)
Theo. Helritz & Son, St. Louis, Mo.
Lights. (Sidewalk.)
T. H. Brooks & Co., Cleveland, O.
Lights. (Torch-Contractors.)
Wells Light Mfg. Co., New York, N. Y.
Lime.
Calera Lime Co., Calera, Ala.
Austin White Lime Co., Austin, Texas.
S. E. Lime & Cement Co., Charleston, S. C.
Link. (Open.)
Keystone Drop Forge Co., Philadelphia, Pa.
Locks. (Bank and Vault.)
Cincinnati Safe & Lock Co., Cincinnati, O.
Locomotive Builders. (See Railroad Equipment and Supplies.)
Climax Mfg. Co., Corry, Pa.
Pittsburg Locomotive Works, Pittsburg, Pa.
H. K. Porter & Co., Pittsburg, Pa.
Baldwin Locomotive Wks., Philadelphia, Pa.
Looms and Weaving Machinery.
Fairmount Machine Co., Philadelphia, Pa.
Crompton & Knowles Loom Works, Worcester, Mass.
Mason Machine Works, Taunton, Mass.
Kilburn, Lincoln & Co., Fall River, Mass.
Charlotte Machine Co., Charlotte, N. C.
American Supply Co., Providence, R. I.
Draper Co., Hopedale, Mass.
Lovell Machine Shop, Boston, Mass.
Petite Mch. Wks., Newton Upper Falls, Mass.
Providence Machine Co., Providence, R. I.
Lubricators and Oil Cups.
Detroit Lubricator Co., Detroit, Mich.
Crosby St. Gage & Valve Co., Boston, Mass.
The Lunkenheimer Co., Cincinnati, O.
Chas. H. Bealy & Co., Chicago, Ill.
Penberthy Injector Co., Detroit, Mich.
Lumber.
Price & Heald, Baltimore, Md.
Price & Co., Baltimore, Md.
Rich. P. Baer & Co., Baltimore, Md.
The E. D. Albro Co., Cincinnati, O.
Machinery.
Robert F. Adams, New York, N. Y.
The American Tool Works Co., Cincinnati, O.
Fairmount Machine Co., Philadelphia, Pa.
Muirhead Machine Works, Pittston, Pa.
H. L. Beach, Montrose, Pa.
Valdosta Fdy. & Mch. Co., Valdosta, Ga.
The Pratt & Whitney Co., Hartford, Conn.
Chattanooga Mch. Co., Chattanooga, Tenn.
F. E. Reed Co., Worcester, Mass.
Cordeaman Machine Co., Cincinnati, O.
Baxter D. Whitney, Winchendon, Mass.
The Wright Co., Lowell, Mass.
Bradford Mill Co., Cincinnati, O.
Fifield Tool Co., Lowell, Mass.
The Bailey-Lebby Co., Charleston, S. C.
J. A. Fay & Co., Cincinnati, O.
The Egan Co., Cincinnati, O.
Smith-Courtney Co., Richmond, Va.
R. D. Wood & Co., Philadelphia, Pa.
S. C. Forsyth Mch. Co., Manchester, N. H.
Machinery. (Special.)
The Tampograph Co., Wilmington, Del.
Walker & Allan, Lansing, Mich.
J. R. Aising Co., New York, N. Y.
Baxter D. Whitney, Winchendon, Mass.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.
Machinery and Tools. (Second-hand.)
Thos. P. Conard, Philadelphia, Pa.
Robert F. Adams, New York, N. Y.
John T. Riley, Charleston, S. C.
S. L. Holt & Co., Boston, Mass.
R. M. Everson, Pittsburg, Pa.
Thomas Carlin's Sons, Allegheny, Pa.
Chas. E. Gregory Co., Chicago, Ill.

Frank Toomey, Philadelphia, Pa.
Smith-Courtney Co., Richmond, Va.
Machinists' Supplies.
Chas. H. Bealy & Co., Chicago, Ill.
Mail Chutes.
Cutler Mfg. Co., Rochester, N. Y.
Mill Engineers.
Hales & Ballinger, Philadelphia, Pa.
Wm. A. Chapman & Co., Providence, R. I.
C. R. Makepeace & Co., Providence, R. I.
Milling Machines.
The American Tool Works Co., Cincinnati, O.
The Pratt & Whitney Co., Hartford, Conn.
Mill Supplies.
J. R. Aising Co., New York, N. Y.
J. A. Gowdy & Son, Providence, R. I.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.
Wm. M. Bird & Co., Charleston, S. C.
Sprout, Waldron & Co., Muncy, Pa.
Chas. H. Bealy & Co., Chicago, Ill.
B. F. Starr & Co., Baltimore, Md.
Smith-Courtney Co., Richmond, Va.
W. J. Clark Co., Salem, O.
The Bailey-Lebby Co., Charleston, S. C.
Mecklenburg Iron Works, Charlotte, N. C.
Queen City Supply Co., Cincinnati, O.
Cameron & Barkley Co., Charleston, S. C.
American Supply Co., Providence, R. I.
Minerals.
E. Willis, Charleston, S. C.
Alpha Paint & Mineral Co., Philadelphia, Pa.
Mining Screens.
The Ludlow-Saylor Wire Co., St. Louis, Mo.
McLanahan & Stone, Hollidaysburg, Pa.
A. J. Beckley & Co., Garwood, N. J.
Mundt & Sons, New York, N. Y.
Harrington & King Perf'g Co., Chicago, Ill.
The Hendrick Mfg. Co., Ltd., Carbondale, Pa.
Mixing Machinery.
J. R. Aising Co., New York, N. Y.
C. H. Dempwolf & Co., York, Pa.
W. D. Dunning, Syracuse, N. Y.
Walker & Elliott, Wilmington, Del.
Mortar Colors.
Saml. H. French & Co., Philadelphia, Pa.
Nails. (Wire.)
The Ludlow-Saylor Wire Co., St. Louis, Mo.
Consolidated Steel & Wire Co., Pittsburg, Pa.
Oils.
Wm. M. Bird & Co., Charleston, S. C.
Chas. H. Bealy & Co., Chicago, Ill.
Fernandina Oil & Cre. Wks., Fernandina, Fla.
Wm. C. Robinson & Co., Baltimore, Md.
Packer. (Cement, Palat, etc.)
The S. Howes Co., Silver Creek, N. Y.
Packing.
The Bradford Belting Co., Cincinnati, O.
The American Balance Slide Valve Co., Jersey Shore, Pa.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Boston Belting Co., Boston, Mass.
Jenkins Bros., New York, N. Y.
Paint.
W. W. Lawrence & Co., Pittsburg, Pa.
National Paint Works, Williamsport, Pa.
Alpha Paint & Mineral Co., Philadelphia, Pa.
Chattanooga Steel Roof. Co., Chattanooga, Tenn.
Alden Speare's Sons & Co., Boston, Mass.
The Armitage Mfg. Co., Richmond, Va.
Standard Paint Co., New York, N. Y.
C. S. Garrett & Son, Philadelphia, Pa.
Wm. M. Bird & Co., Charleston, S. C.
Samuel H. French & Co., Philadelphia, Pa.
Joseph Dixon Crucible Co., Jersey City, N. J.
Fernandina Oil & Cre. Wks., Fernandina, Fla.
Paint. (Asbestine Cold Water.)
Alden Speare's Sons & Co., Boston, Mass.
Paint. (Fire-resisting.)
Standard Paint Co., New York, N. Y.
Alden Speare's Sons & Co., Boston, Mass.
Paper. (Roofing, Bldg., Sheathing, etc.)
Garrett-Buchanan Co., Philadelphia, Pa.
The Standard Palat Co., New York, N. Y.
National Roofing & Sup. Co., Louisville, Ky.
The Armitage Mfg. Co., Richmond, Va.
C. S. Garrett & Son, Philadelphia, Pa.
Paper. (Sand, Emery.)
Baeder, Adams & Co., Philadelphia, Pa.
Papier Mache. (Capitals, Brackets, etc.)
L. Grosse Art Glass Works, Pittsburg, Pa.
Paving Material.
Barber Asphalt Paving Co., New York, N. Y.
National Roofing & Sup. Co., Louisville, Ky.
Warren Chem. & Mfg. Co., New York, N. Y.
Perforated Metal.
The Ludlow-Saylor Wire Co., St. Louis, Mo.
Chas. H. Bealy & Co., Chicago, Ill.
A. J. Beckley & Co., Garwood, N. J.
The Hendrick Mfg. Co., Ltd., Carbondale, Pa.
Mundt & Sons, New York, N. Y.
Harrington & King Perf'g Co., Chicago, Ill.
Phosphate Machinery.
J. R. Aising Co., New York, N. Y.
Walker & Elliott, Wilmington, Del.
C. H. Dempwolf & Co., York, Pa.
Foss Mfg. Co., Springfield, O.
Bradley Pulverizer Co., Boston, Mass.
Sturtevant Mill Co., Boston, Mass.
McLanahan & Stone, Hollidaysburg, Pa.
Valk & Murdoch Iron Wks., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
The Bailey-Lebby Co., Charleston, S. C.
Phosphate Screens.
A. J. Beckley & Co., Garwood, N. J.
Mundt & Sons, New York, N. Y.
Harrington & King Perf'g Co., Chicago, Ill.
The Hendrick Mfg. Co., Ltd., Carbondale, Pa.
McLanahan & Stone, Hollidaysburg, Pa.
Pillow Blocks.
Norris, Burnham & Co., Inc., Glen Rock, Pa.
Golden Fdy. & Mch. Co., Columbus, Ga.
Pipe. (Cast Iron and Steel.)
R. D. Wood & Co., Philadelphia, Pa.
Pipe. (Coll.)
National Pipe Bend. Co., New Haven, Conn.
Pipe. (Lead.)
James Robertson Mfg. Co., Baltimore, Md.
Pipe. (Wrought Iron.)
James Robertson Mfg. Co., Baltimore, Md.
Pipe. (Sewer and Culvert.)
Austin White Lime Co., Austin, Texas.
Pomona Terra Cotta Co., Pomona, N. C.
H. Stevens's Sons Co., Macon, Ga.

ARCHITECTS, CIVIL ENGINEERS, MINING ENGINEERS, CHEMISTS, Etc.

Thorburn Reid. Richard R. Bryan.

THORBURN REID CONSULTING ELECTRICAL ENGINEERS.

Plans and specifications for Power Transmission, Utilization of Water Powers, Railway and Lighting Central Stations.
Construction Supervised.
Electrical Apparatus Designed.
120 Liberty St., New York City.
Long Distance Telephone, Cortlandt, 2708.

HALES & BALLINGER, ARCHITECTS AND MILL ENGINEERS,

S. W. Cor. 12th and Chesnut Streets,
PHILADELPHIA, PA.

Philadelphia references—a few of the plants recently erected as designed by us: American Baptist Publication Society; Richardson & DeLong Brothers; Caleb J. Milne; Fels & Co.; W. G. Ellis & Co.; Wm. P. Datz & Bro.

JOHN McDONALD & SONS, Engineers, Architects and Contractors.

Consulting engineers and contractors of water works, sewers, development of water powers power transmission and general public works. Estimates given and correspondence solicited.
BURT McDONALD, Architect and Civil Engineer.
CHAS. K. McDONALD, Civil Engineer.
708 Colorado St., AUSTIN, TEX.

C. R. MAKEPEACE & CO. Architects and Mill Engineers

PROVIDENCE, R. I. Plans, Specifications and Estimates furnished for Cotton and Woolen Mills.

EDWARD E. ERIKSON, Engineer & Contractor, Conestoga Bldg., Pittsburg, Pa.
Builds (complete) Steel Plants, Sheet and Tin Plate Mills, Open Hearth, Crucible, Heating, Annealing Furnaces and Soaking Pits. Erikson Water Sealed Gas-Producer produces gas under tubular boilers, saving 20¢ fuel; no smoke. Steel Buildings for all purposes.

GEORGE F. GLASKIN & CO. Steam and Water Heating Apparatus.
Mechanical Engineers and Contractors, Complete Power Plants Erected.
40 N. Forsyth St. ATLANTA, GA. Steam Supplies.

St. Louis. Heavy Masonry Contractors. Buffalo.

James Stewart & Co.

Railway Buildings, Manufacturing Plants and Grain Elevators.

WATER GUARANTEED.

HENRY E. KNOX, Jr., Consulting and Hydraulic Engineer.

Artesian and Tube Wells a specialty. General Water Works, Construction, Surveys, Plans and Estimates. Borings made for Architects, Bridge and Railroad Engineers. Pipe and Pumping Machinery.

CHARLOTTE, N. C.

ARE YOU INTERESTED ...IN... CEMENT ROSENDALE?

Send name and address for book.

COMMERCIAL WOOD AND CEMENT CO.

GIRARD BUILDING, PHILADELPHIA.

MILLER BROS. & CO.

Tradesmen's Bldg.,

PITTSBURGH, PA.

Miller's Patent Soaking Pit, O. H., Tube Welding, Heating and Annealing Furnaces. Plants Built Complete. Best Work. Modern Designs and Guaranteed Results.

THE DUFF GAS PRODUCER HAS NO EQUAL.

T. L. FOSSICK COMPANY,

PRODUCERS AND WHOLESALE DEALERS IN

Darlington - OOLITIC - Limestone.

Quarries and Mills at ROCKWOOD, ALA.
Office at SHEFFIELD, ALA.

SUPERIOR BUILDING STONE.

LARGEST PLANT AND BEST FACILITIES IN THE SOUTH.

TECHNICAL EDUCATION 50 CENTS A WEEK

For \$3 down and \$2 a month, we give AN EDUCATION in:

STEAM ENGINEERING

Electrical, Mechanical or Civil Engineering; Refrigeration; Chemistry; Mining; Architectural; or Mechanical Drawing; Surveying and Mapping; Sanitary Plumbing; Architecture; Sheet Metal; Patents; Drafting; Prospecting; Bookkeeping; Shortland; English Branches.
All who study GUARANTEED SUCCESS.
We have helped thousands to better positions.
Circular Free. State subject you wish to study.
International Correspondence Schools, Box 986, Scranton, Pa.

TOWER & WALLACE,

ARCHITECTS AND ENGINEERS.
1015 Townsend Bldg., Broadway & 14th St., New York.
Surveys, plans, specifications and estimates for the design and equipment of paper, fibre and textile mills. Power development and transmission. Evaluations and negotiations for manufacturing property.

WM. A. CHAPMAN & CO. Mill Builders

Main Office:
PROVIDENCE, R. I.

FRANK P. MILBURN, Architect

Furnishes plans for court houses, jails, churches, colleges, schools, city halls, fine residences, etc.
CORRESPONDENCE INVITED.

Engineers. Contractors. RITER-CONLEY COMPANY,

Iron and Steel Construction, Blast Furnaces, Steel Plants, Iron Roofs and Frames, Riveted Girders, Columns, etc., Heavy Plate Iron Work. Designed, prepared and erected.
General Office: 55 & 56 Water St., Pittsburg, Pa.
New York Office: 39 & 41 Cortlandt St., New York, N. Y.

B. BRENTNALL LATHBURY, Assoc. M. A. M. Soc. C. E.

HENRY S. SPACKMAN.

LATHBURY & SPACKMAN,
Specialties—Design and Construction of Cement Plants, Inspection of Materials, Chemical Analysis. Tests up to 200,000 lbs. Office and Laboratories, 1619 Filbert St., PHILADELPHIA

C. A. M. PRARAY. CHAS. A. M. PRARAY & CO., Banigan Bldg., Providence, R. I. WM. WHITTAM, JR.

MILL ARCHITECTS AND ENGINEERS.
Plans and Specification furnished for the construction and equipment of Cotton, Woolen and Carpet Mills, Bleacheries and Dye Works. Praray's Improved Construction for Mills, etc., a Specialty. Old mills reorganized and extended.

SOUTHERN OFFICE, CHARLOTTE, N. C.

V. P. GUILFOUX, Civil Engineer. FRANK BLANC, Contractor & Builder

GUILFOUX & BLANC, General Contractors,

Canal, Iron Bridge, Waterworks and Railroad Building. All kinds of Building Material for above lines Bought and Sold on Commission.
NEW IBERIA, LOUISIANA.

G. W. CHANCE & CO. Engineers and Contractors.
14 S. Broad St., PHILA., PA.
Southern Agt. M. A. Agelasto, E. E. 27 Plume St., NORFOLK, VA.

Mills, Railways, Power Plants, Mines, Expert Reports.

The Hutton Engineering Co.

Consulting and Contracting

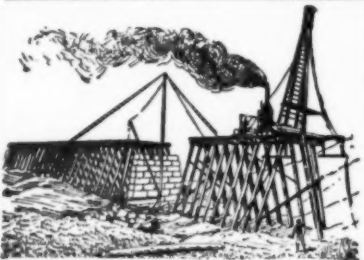
ELECTRICAL AND MECHANICAL ENGINEERS.

Central Stations.

Electric Railways,

Steam and Power Plants.

BALTIMORE, MD. LEXINGTON, VA.



WATKINS & HARDAWAY

ENGINEERS AND CONTRACTORS,
Chalfoux Building, Birmingham, Ala.
General Railway Work.
Bridges and Masonry.

Special Equipment for heavy pile driving and trestle work.

Importers Portland Cement and Terne Plates.

C. M. GILBERT & CO. SAVANNAH, GA.

SOUTHEASTERN LIME & CEMENT CO.

CHARLESTON, S. C.

Direct Importers

ENGLISH and BELGIUM PORTLAND CEMENTS.
Southern Agents New York & Rosendale Cement Co.'s Standard Hydraulic Cement.
Brooklyn Bridge and Hudson River Brands.

Maryland Cement Co.

Manufacturers of

Highest Grade

Portland Cement

Builders' Exchange Building,
BALTIMORE, MD.

William M. Bird & Co.
CHARLESTON, S. C.
Manufacturers' Agents for
PORTLAND and ROSENDALE CEMENTS.
State Agents for
Howe Standard Scales,
Diebold Fire and Burglar Proof Safes.
Dealers in
MILL SUPPLIES OF ALL KINDS, OILS,
PAINTS, and PAINTIN MATERIAL.

J. ROSS HANAHAN,
ANALYTICAL AND CONSULTING CHEMIST,
CHARLESTON, S. C.
Analyses of all kinds. PHOSPHATES and FERTILIZERS a Specialty.

DR. OTTO MEYER, Analytical and Consulting Chemist, 1107 E. Cary St., Richmond, Va.
Analyses of natural and artificial products. Industrial processes investigated and worked out. Mineral properties examined.

N. P. PRATT LABORATORY,
Fitten Building, ATLANTA, GA.
Assays and analyses of all natural and artificial products. Chemical and mining engineering.

LUCIUS P. BROWN,
Cumberland Publishing Bldg., Nashville, Tenn.
Analytical and Consulting Chemist and Assayer.
Assays and analyses of all classes of materials. Examinations of mineral properties.

DR. HENRY FROEHLING,
Analytical and Consulting Chemist,
17 SOUTH 12th STREET,
RICHMOND, VA.

Analyses and assays of ores of every kind, iron, steel and other metals, coal and coke, clays, marls and limestones, phosphates and fertilizers, mineral waters, waters for drinking and for boiler use, oils, commercial products, etc.
Estimates promptly furnished. Geological and chemical investigation of mineral properties of the South.

S. J. MACFARREN, M. E.
Electric, Traction
and Transmission Engineering.
Water-Power Development.
Introduction of Capital.
Financing Reports a Specialty.
Lock Box 864. PITTSBURGH, PA.

B. C. HOWARD,
Consulting Electrical Engineer.
Personal attention given to plans and specifications.
33 MFRS. RECORD BLDG.
BALTIMORE, MD.

H. ALBER, C. E. P. BYRNE, M. E.
ALBER & BYRNE.
CIVIL, MINING, BRIDGE, MECHANICAL,
AND CONSULTING ENGINEERS.
Railroads and Bridges, Mines and Mining Machinery, Furnaces and Coke Ovens, City Sewerage and Water Works, Surveys and Reports on Mineral Lands.
Office, 1821 1/2 Second Avenue,
BIRMINGHAM, ALA.

C. H. NORTON,
Contractor and Builder,
Cotton Factories, Residences, Churches
Business Buildings.
All Classes of Heavy and Fancy Buildings.
Correspondence Solicited.
DURHAM, N. C.

CHAS. McFADDEN, Jr.,

Successor to

CHAS. McFADDEN & SONS,

Railroad Contractors,

722 Arch Street, PHILADELPHIA, PA.

AUSTIN WHITE LIME CO.

A. F. MARTIN & BRO., Proprietors.
415 Congress Ave., AUSTIN, TEX.
Manufacturers of the

CELEBRATED AUSTIN WHITE LIME
and dealers in Portland and Rosendale Cements,
Plaster, Sewer Pipe, Fire-Brick, etc.
Largest Lime Works in Texas, and best shipping facilities. Write for prices.

CALERA LIME COMPANY,
Sole Manufacturers of
WHITE SWAN LIME,
CALERA, ALA.

White Swan Lime worth more to the consumer than any other, it is the strongest, purest and whitest made. For sugar refining can't be equalled. For brick work and plastering it is the best. You will make money by using the best. Ask for prices before purchasing or other information desired.
J. D. HARDY, Pres.

CLASSIFIED INDEX OF ADVERTISERS.

For ALPHABETICAL INDEX See Page 262.

Pipe Cutting & Threading Mchs.
Columbus Machine Co., Columbus, O.
Henry B. Pancoast & Co., Philadelphia, Pa.
D. Saunders' Sons, Yonkers, N. Y.

Plaster Ornaments.
Samuel H. French & Co., Philadelphia, Pa.
Plating. (Nickel.)
Hanson & Van Winkle Co., Newark, N. J.

Plumbers' Supplies and Tools.
H. Mueller Mfg. Co., Decatur, Ill.
Haines, Jones & Cadbury Co., Phila., Pa.
James Robertson Mfg. Co., Baltimore, Md.
Henry B. Pancoast & Co., Philadelphia, Pa.

Plumbago.
Joseph Dixon Crucible Co., Jersey City, N. J.
Presses. (Baling, etc.)
Alabama Fdy. & Mch. Wks., New Decatur, Ala.

G. H. Bushnell Press Co., Thompson's, Conn.
Cardwell Machine Co., Richmond, Va.
Boomer & Boschert Press Co., Syracuse, N. Y.
Valk & Murdoch Iron Wks., Charleston, S. C.

Presses. (Stamping.)
Niagara Machine & Tool Works, Buffalo, N. Y.
West Manufacturing Co., Buffalo, N. Y.
Toledo Machine & Tool Co., Toledo, O.
The E. S. Stiles Press Co., Watertown, N. Y.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Pulleys, Shafting and Hangers.
The Lane & Bodley Co., Cincinnati, O.
Christiana Machine Co., Christiana, Pa.
Fairmount Machine Co., Philadelphia, Pa.
Jeannette Iron Works Co., Jeannette, Pa.
Norris, Burnham & Co., Glen Rock, Pa.
The Jeffrey Mfg. Co., Columbus, O.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.

Golden Fdy. & Mch. Co., Columbus, Ga.
Nordyke & Marmion Co., Indianapolis, Ind.
Lane Mfg. Co., Montpelier, Vt.
Wolf Co., Chambersburg, Pa.
Charlotte Machine Co., Charlotte, N. C.
E. M. Freese & Co., Gallon, O.
Walker & Elliott, Wilmington, Del.
H. W. Caldwell & Son Co., Chicago, Ill.

Pumps. (Gravity.)
A. A. Griffing Iron Co., New York, N. Y.

Pumps. (Power Boiler-Feed.)
A. S. Cameron St. Pump Wks., New York, N. Y.
John H. McGowan Co., Cincinnati, O.

Pumps. (Steam.)
Gardner Governor Co., Quincy, Ill.
Muirhead Machine Works, Pittston, Pa.
Hall Steam Pump Co., Pittsburg, Pa.
Albany Steam Trap Co., Albany, N. Y.
The E. W. Van Duzen Co., Cincinnati, O.
Mason Regulator Co., Boston, Mass.
Snow Steam Pump Wks., Buffalo, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.
John H. McGowan & Co., Cincinnati, O.
Henry R. Worthington, New York, N. Y.
Pulsometer St. Pump Co., New York, N. Y.
Dean Bros. St. Pump Wks., Indianapolis, Ind.
A. S. Cameron St. Pump Wks., New York, N. Y.

Pumping Machinery.
Hall Steam Pump Co., Pittsburg, Pa.
Snow Steam Pump Works, Buffalo, N. Y.

Pump Governor.
Vladuet Brass Works, Cleveland, O.
Albany Steam Trap Co., Albany, N. Y.
Mason Regulator Co., Boston, Mass.
E. Keeler Co., Williamsport, Pa.

Punching and Shearing Machinery.
Walker & Allan, Lansing, Mich.
West Manufacturing Co., Buffalo, N. Y.

Toledo Machine & Tool Co., Toledo, O.
The E. S. Stiles Press Co., Watertown, N. Y.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Bertsch & Co., Cambridge City, Ind.
J. M. Robinson & Co., Cincinnati, O.
Niagara Machine & Tool Wks., Buffalo, N. Y.
S. C. Forsyth Mch. Co., Manchester, N. H.

Quarry and Stonecutting Mch.
Sullivan Machinery Co., Chicago, Ill.

Rand Drill Co., New York, N. Y.
Ingersoll-Sargeant Drill Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.

Radiators. (Steam and Water.)
A. A. Griffing Iron Co., New York, N. Y.

Railroad Equipment and Supplies.
(New and Second-Hand.)
Thos. P. Conard, Philadelphia, Pa.

Benjamin Iron & Steel Co., Buffalo, N. Y.
Ben. Watson, New York, N. Y.
The Steel Rail Supply Co., New York, N. Y.
Fitz-Hugh & Co., Chicago, Ill.

Haskins Williams & Co., Birmingham, Ala.
Climax Mfg. Co., Corry, Pa.
New York Equipment Co., New York, N. Y.

Dalzell & Co., Philadelphia, Pa.
Block-Pollak Iron Co., Cincinnati, O.
Pittsburg Locomotive Wks., Pittsburg, Pa.
M. Mitshkun & Co., Detroit, Mich.

Poulter & Co., Philadelphia, Pa.
Hickman & Williams, Louisville, Ky.
The Bailey-Libby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.

L. K. Hirsch, Chicago, Ill.
Robinson & Orr, Pittsburg, Pa.
Weir Frog Co., Cincinnati, O.
H. K. Porter & Co., Pittsburg, Pa.

Baldwin Locomotive Wks., Philadelphia, Pa.
Rails. (Steel.)
The Steel Rail Supply Co., New York, N. Y.

Aetna Stand. Iron & Steel Co., Bridgeport, O.
Reamers.
The Tampograph Co., Wilmington, Del.

Morse Twist Drill & Mch. Co., New Bedford, Mass.
Refrigerating Plants. (See Ice-making Machinery.)
Regulators. (Water & Steam Pressure.)

Crosby St. Gage & Valve Co., Boston, Mass.
H. Mueller Mfg. Co., Decatur, Ill.
Mason Regulator Co., Boston, Mass.
Henry R. Worthington, New York, N. Y.

Regulators. (Damper.)
Mason Regulator Co., Boston, Mass.
Riveter. (For Cotton Tie Bands.)
Central City Machine Works, Columbus, O.

Road Machinery.
Pope Revers. Street Roller Co., St. Louis, Mo.
Keystone Crusher & Roller Co., Pittsburg, Pa.
Russell & Co., Massillon, O.
The O. S. Kelly Co., Springfield, O.

Kilbourne & Jacobs Mfg. Co., Columbus, O.

Roofing. (Felt, Tar, Asphalt, Paper, etc.)
Merchant & Co., Philadelphia, Pa.
Garrett-Buchanan Co., Philadelphia, Pa.

National Roofing & Sup. Co., Louisville, Ky.
The Armitage Mfg. Co., Richmond, Va.
Standard Paint Co., New York, N. Y.

Warren Chem. & Mfg. Co., New York, N. Y.
Empire Paint & Roofing Co., Phila., Pa.
C. S. Garrett & Son, Philadelphia, Pa.

Roofing and Siding. (Metal.)
Merchant & Co., Philadelphia, Pa.
The New Columbus Bridge Co., Columbus, O.

Gedge Bros. Iron Roofing Co., Anderson, Ind.
Chattanooga Steel Roof Co., Chattanooga, Tenn.
Cincinnati Corrugating Co., Piqua, O.

Philadelphia Steel Roofing Co., Phila., Pa.
Cortright Metal Roofing Co., Phila., Pa.
Roofing. (Metal Shingles.)
Cortright Metal Roofing Co., Phila., Pa.

Roofing. (Slate.)
John Galt & Sons, New York, N. Y.
Slatington-Bangor Slate Syndicate, Slatington, Pa.

Williams & Schmid, Granville, N. Y.
David McKenna, Slatington, Pa.
Roofers' and Planners' Supplies.
Niagara Machine & Tool Works, Buffalo, N. Y.

J. M. Robinson & Co., Cincinnati, O.
Rope. (Transmission.)
The American Mfg. Co., New York, N. Y.

Rubber Goods.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Boston Belting Co., Boston, Mass.

Eureka Fire Hose Co., New York, N. Y.
Sacks. (Fertilizer, etc.)
Royal Bag Mfg. Co., Charleston, S. C.

John T. Bailey & Co., Philadelphia, Pa.
Sandpaper. (See Paper.)
Safes.
Cincinnati Safe & Lock Co., Cincinnati, O.

Safety Water Columns.
A. A. Griffing Iron Co., New York, N. Y.
Saws. (See Woodworking Machinery.)
Hammacher, Schlemmer & Co., New York.

Huther Bros., Rochester, N. Y.
Standard Saw Mill Machy. Co., Erie, Pa.
H. Disston & Sons, Philadelphia, Pa.

E. C. Atkins & Co., Indianapolis, Ind.
W. F. & John Barnes Co., Rockford, Ill.
Saw Mill Machinery.

The Lane & Bodley Co., Cincinnati, O.
High Point Mch. Works, High Point, N. C.
Chambersburg Eng. Co., Chambersburg, Pa.

Franklin F. Davis, Atlanta, Ga.
Standard Saw Mill Machy. Co., Erie, Pa.
H. L. Beach, Montrose, Pa.

Valdosta Fdy. & Mch. Co., Valdosta, Ga.
Cordeman Machine Co., Cincinnati, O.
The E. D. Albro Co., Cincinnati, O.

A. B. Farquhar Co., Ltd., York, Pa.
Hench & Bromgold, York, Pa.
Union Iron Works Co., Selma, Ala.

The Bailey-Libby Co., Charleston, S. C.
Lane Mfg. Co., Montpelier, Vt.
J. A. Fay & Co., Cincinnati, O.

The Egan Co., Cincinnati, O.
Mecklenburg Iron Works, Charlotte, N. C.
Cameron & Barkley Co., Charleston, S. C.

S. C. Forsyth Mch. Co., Manchester, N. H.
E. & B. Holmes Mch. Co., Buffalo, N. Y.
Scales. (Railroad, etc.)

Stand. Scale & Sup. Co., Ltd., Pittsburg, Pa.
Schools and Colleges.
Lowell Textile School, Lowell, Mass.

International Corres. Schools, Scranton, Pa.
Screens. (Ore and Coke.)
The Jeffrey Mfg. Co., Columbus, O.

The Ludlow-Saylor Wire Co., St. Louis, Mo.
A. J. Beckley & Co., Garwood, N. J.
Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Harrington & King Perf. Co., Chicago, Ill.
Mundt & Sons, New York, N. Y.
Screen Plates.

The Ludlow-Saylor Wire Co., St. Louis, Mo.
A. J. Beckley & Co., Garwood, N. J.
Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Harrington & King Perf. Co., Chicago, Ill.
Mundt & Sons, New York, N. Y.
Screws. (Machine and Wood.)

Franklin S. Miles, Philadelphia, Pa.
Philadelphia Mch. Screw Wks., Phila., Pa.
Screws. (Set, Cap and Special.)

Franklin S. Miles, Philadelphia, Pa.
Scroll Saws. (See Woodworking Mch.)
Cordeman Machine Co., Cincinnati, O.

H. L. Beach, Montrose, Pa.
W. F. & John Barnes Co., Rockford, Ill.
J. A. Fay & Co., Cincinnati, O.

The Egan Co., Cincinnati, O.
Separator. (Magnetic.)
The S. Howes Co., Silver Creek, N. Y.

Separator. (Steam and Grease.)
A. A. Griffing Iron Co., New York, N. Y.
Sheet Metal Working Machinery.

West Manufacturing Co., Buffalo, N. Y.
Toledo Machine & Tool Co., Toledo, O.
The Jeffrey Mfg. Co., Columbus, O.

The E. S. Stiles Press Co., Watertown, N. Y.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Bertsch & Co., Cambridge City, Ind.
Chas. H. Besly & Co., Chicago, Ill.

J. M. Robinson & Co., Cincinnati, O.
Niagara Machine & Tool Wks., Buffalo, N. Y.

M. Zier & Co., New Albany, Ind.
Shingle, Lath and Stave Machinery.

(See Woodworking Machinery.)
Lane Mfg. Co., Montpelier, Vt.
E. & B. Holmes Mch. Co., Buffalo, N. Y.

Trevor Mfg. Co., Lockport, N. Y.
S. C. Forsyth Mch. Co., Manchester, N. H.

Ship Builders. (Iron and Steel.)
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Skylights.
Merchant & Co., Philadelphia, Pa.

Pittsburg Plate Glass Co., Pittsburg, Pa.
Slate. (Roofing and Blackboard.)

John Galt & Sons, New York, N. Y.
Williams & Schmid, Granville, N. Y.

Slatington-Bangor Slate Syndicate, Slatington, Pa.
David McKenna, Slatington, Pa.

Soapmakers' and Butchers' Mch.
H. Wm. Dopp & Son, Buffalo, N. Y.

Solder.
Theo. Heitz & Son, St. Louis, Mo.

Spark Arresters.
The South Bend Spark Arrester Co., South Bend, Ind.

Speaking Tubes.
Chas. H. Besly & Co., Chicago, Ill.
Spelter.

Theo. Heitz & Son, St. Louis, Mo.
Spring. (Bicycle Saddle.)
Morgan Spring Co., Worcester, Mass.

Spring. (Spiral.)
The Ludlow-Saylor Wire Co., St. Louis, Mo.
Morgan Spring Co., Worcester, Mass.

The Cleveland Wire Spring Co., Cleveland, O.
Hansell Spring Co., Newark, N. J.
Chas. H. Besly & Co., Chicago, Ill.

N. J. Car Spring & Rub. Co., Jersey City, N. J.
Spring. (Railway and Machinery.)
Morgan Spring Co., Worcester, Mass.

The Cleveland Wire Spring Co., Cleveland, O.
Hansell Spring Co., Newark, N. J.
Sprinklers. (Automatic.) (See Fire Ex-

Stair Treads. (Steel.) (tingulshers.)
A. J. Beckley & Co., Garwood, N. J.
Standpipes.

The Means & Fulton Iron Works, Birmingham, Ala.
Ritter-Conley Co., Pittsburg, Pa.
York Mfg. Co., York, Pa.

Broomell, Schmidt & Co., Ltd., York, Pa.
M. Zier & Co., New Albany, Ind.
Alabama Bridge & Bol. Co., Birmingham, Ala.

Hartley's Boiler Works, Montgomery, Ala.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.
Birmingham Boiler Wks., Birmingham, Ala.

Steam Engine Indicators.
Thompson & Bushnell, New York, N. Y.
Crosby St. Gage & Valve Co., Boston, Mass.

Crosby St. Gage & Valve Co., Boston, Mass.
Steam Heating.
A. A. Griffing Iron Co., New York, N. Y.

L. B. Brickenstein, Salem, N. C.
The Peck-Hammond Co., Cincinnati, O.
T. H. Brooks & Co., Cleveland, O.

Broomell, Schmidt & Co., Ltd., York, Pa.
Warren Webster & Co., Camden, N. J.
Steam Shovels. (See Dredges and Ex-

Steam Traps.
A. A. Griffing Iron Co., New York, N. Y.
B. F. Sturtevant Co., Boston, Mass.

Albany Steam Trap Co., Albany, N. Y.
William S. Haines Co., Philadelphia, Pa.
Mason Regulator Co., Boston, Mass.

Steam Supplies.
A. A. Griffing Iron Co., New York, N. Y.
Geo. F. Glaskin & Co., Atlanta, Ga.

Wallace Stebbins, Baltimore, Md.
Steamship Lines.
Buffalo & Cleveland Transit Co., Cleveland, O.

Richmond & York River Line, Balto., Md.
Merchants & Miners' Trans. Co., Balto., Md.
Bay Line Steamers, Baltimore, Md.

Baltimore Storage & Light Co., Balto., Md.
Steel. (Manufacturers of.)
Janney, Steinmetz & Co., Philadelphia, Pa.

Aetna Stand. Iron & Steel Co., Bridgeport, O.
Apollo Iron & Steel Co., Pittsburg, Pa.
Chester Steel Castings Co., Phila., Pa.

Chrome Steel Works, Brooklyn, N. Y.
Steel. (Safe and Vault.)
Chrome Steel Works, Brooklyn, N. Y.

Stokers. (Mechanical.)
Westinghouse Machine Co., Pittsburg, Pa.
The Playford Stoker Co., Cleveland, O.

J. M. Wilkinson Mfg. Co., Bridgeport, Pa.
Stoppers and Nozzles. (For Furnaces.)
R. B. Seidel, Philadelphia, Pa.

Stoves.
Broomell, Schmidt & Co., Ltd., York, Pa.
Stoves. (Gasoline.)

Schneider & Trenkamp Co., Cleveland, O.
Studs, Nuts.
Franklin S. Miles, Philadelphia, Pa.

Switch Boards, Switches, etc.
Crouse-Hinds Electric Co., Syracuse, N. Y.
Stanley Electric Mfg. Co., Pittsburg, Mass.

Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
Tanks. (Iron and Steel.)
Janney, Steinmetz & Co., Philadelphia, Pa.

The Klechier Mfg. Co., Cincinnati, O.
The Means & Fulton Iron Works, Birmingham, Ala.
Ritter-Conley Co., Pittsburg, Pa.

York Mfg. Co., York, Pa.
Broomell, Schmidt & Co., Ltd., York, Pa.
Alabama Bridge & Bol. Co., Birmingham, Ala.

Hartley's Boiler Works, Montgomery, Ala.
Lombard Iron Wks. & Sup. Co., Augusta, Ga.
Pittsburg Locomotive Wks., Pittsburg, Pa.

Birmingham Boiler Wks., Birmingham, Ala.
Tudor Boiler Mfg. Co., Cincinnati, O.
Valk & Murdoch Iron Wks., Charleston, S. C.

Tanks. (Wood.)
G. M. Davis & Son, Palatka, Fla.
H. F. Lewis & Co., Ltd., New Orleans, La.

Cypress Lumber Co., Apalachicola, Fla.
Tarred Goods.

C. S. Garrett & Son, Philadelphia, Pa.
Telephones.

The Hawson Electric Co., Elyria, O.
Terne Plate.

Aetna Stand. Iron & Steel Co., Bridgeport, O.
C. M. Gilbert & Co., Savannah, Ga.

Terra Cotta.
Pomona Terra Cotta Co., Pomona, N. C.

V. H. Krieshaber, Atlanta, Ga.
Textile Machinery. (See Cotton Mill Machinery.)

Fairmount Machine Co., Philadelphia, Pa.
J. A. Gowdey & Son, Providence, R. I.

Crompton & Knowles Loom Works, Worcester, Mass.
Curtis & Marble Mch. Co., Worcester, Mass.

Branson Machine Co., Philadelphia, Pa.
Lowell Machine Shop, Lowell, Mass.

American Supply Co., Providence, R. I.
Draper Co., Hopedale, Mass.

Whitinsville Spln. Ring Co., Whitinsville, Mass.
Mason Machine Works, Taunton, Mass.

Charlotte Machine Co., Charlotte, N. C.
Kilburn, Lincoln & Co., Fall River, Mass.

Providence Machine Co., Providence, R. I.
Easton & Burnham Mch. Co., Pawtucket, R. I.

Timplate.
Aetna Stand. Iron & Steel Co., Bridgeport, O.

Tobacco Machinery.
Cardwell Machine Co., Richmond, Va.

Buckeye Iron and Brass Works, Dayton, O.
Tools. (Machinists and Mechanics.)

The Tampograph Co., Wilmington, Del.
Morse Twist Drill & Mch. Co., New Bedford, Mass.

The American Tool Works Co., Cincinnati, O.
Hammacher, Schlemmer & Co., New York.

Field Tool Co., Lowell, Mass.
Chas. H. Besly & Co., Chicago, Ill.
Henry B. Pancoast & Co., Philadelphia, Pa.

Tools. (Bicycle and Electrical.)
Toledo Machine & Tool Works, Toledo, O.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Tools. (Tlanners.)
Niagara Machine & Tool Wks., Buffalo, N. Y.
Torch. (Contractors.)

Wells Light Mfg. Co., New York, N. Y.
Towns.
Radford Board of Trade, Radford, Va.

Charleston, S. C.
Tramway. (Overhead.)
Cohoes Iron Fdry. & Mch. Co., Cohoes, N. Y.

Coburn Trolley Truck Mfg. Co., Holyoke, Mass.
Trust Companies. (See Bankers and Tube Expanders.)
Joseph F. McCoy Co., New York, N. Y.

Tubing.
The Ludlow-Saylor Wire Co., St. Louis, Mo.
Chas. H. Besly & Co., Chicago, Ill.

Turbines. (See Water Wheels.)
Valve. (Slide.)
The American Balance Slide Valve Co., Jersey Shore, Pa.

Valves.
A. A. Griffing Iron Co., New York, N. Y.
Frontier Iron Works, Detroit, Mich.

Viaduct Brass Works, Cleveland, O.
John Featherstone's Sons, Chicago, Ill.
The Fred W. Wolf Co., Chicago, Ill.

Boston Belting Co., Boston, Mass.
The Kelly & Jones Co., Greensburg, Pa.
Crosby St. Gage & Valve Co., Boston, Mass.

The Lunkenheimer Co., Cincinnati, O.
Mason Regulator Co., Boston, Mass.
Chapman Valve Mfg. Co., Indian Orchard, Mass.

N. J. Car Spring & Rub. Co., Jersey City, N. J.
R. D. Wood & Co., Philadelphia, Pa.
Ludlow Valve Mfg. Co., Troy, N. Y.

Broomell, Schmidt & Co., Ltd., York, Pa.
Veneer Machines.
The E. D. Albro Co., Cincinnati, O.

Wagon Builders' Mch. & Supplies.
Cordeman Machine Co., Cincinnati, O.
Cordeman, Meyer & Co., Cincinnati, O.

H. L. Beach, Montrose, Pa.
J. A. Fay & Co., Cincinnati, O.
The Egan Co., Cincinnati, O.

Wall Tiles. (Steel.)
The Cleveland Wire Spring Co., Cleveland, O.
Washers. (Ore and Phosphate.)

McLanahan & Stone, Hollidaysburg, Pa.
Valk & Murdoch Iron Wks., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.

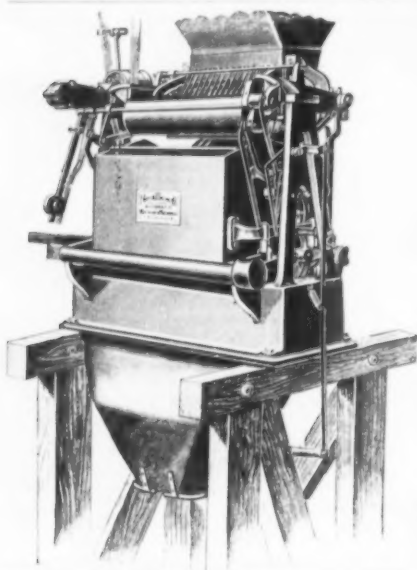
The Bailey-Libby Co., Charleston, S. C.
Water Columns.
A. A. Griffing Iron Co., Jersey City, N. J.

Water Power.
L. H. Chappell, Mayor, Columbus, Ga.
Columbia Water Power Co., Columbia, S. C.

Ronoke Nav. & Wat. Pow. Co., Weldon, N. C.
Water Wheels and Turbines.
Christiana Machine Co., Christiana, Pa.

American Impulse Wheel Co., New York, N. Y.
Norris, Burnham & Co., Inc., Glen Rock, Pa.
James Leffel & Co., Springfield, O.

Lane Mfg. Co., Montpelier, Vt.
Wolf Co., Chambersburg

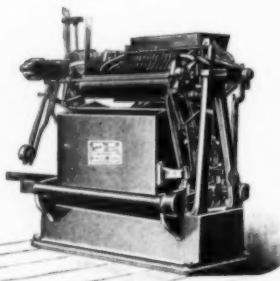


Indispensable for . . . Cotton-Seed Oil Mills.

The Pratt & Whitney Co.'s
**Automatic
Weighing
Machines**
for Cotton-Seed
and Cotton-Seed Meal.

Write for Circular C.

The Pratt & Whitney Co., Hartford, Conn.



The Rider Packer

Iron Front, Friction Clutch

Is specially adapted for packing cement, alkali, plaster, paints, foundry facings and other powdered and granulated material. This is the latest and strongest packer on the market. The only packer having ball-bearings, making it the smoothest and lightest running packer on the market.

The Eureka Automatic Separator.

This machine is specially constructed for separating iron, nails and metallic particles from phosphates and other powdered materials.

For particulars and prices of these machines, write

The S. Howes Company,
EUREKA WORKS,
Silver Creek, N. Y., U. S. A.

Established 1856.

The Robinson Patent Grinding Mill

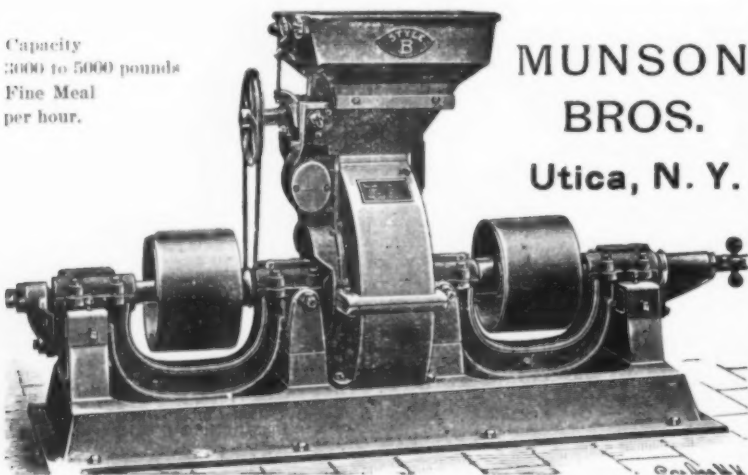
Danbury, Conn., November 12, 1896.

MESSRS. MUNSON BROS., Utica, N. Y.:

Gentlemen—Inclosed find check to balance account. In regard to the Robinson Mill, it is all you claim for it, and for grinding corn cob cannot be excelled.

In all of our twenty-five years' experience in the feed business we have never seen a mill that will compare with the Robinson for all kinds of grinding. Yours truly,
DANBURY MILLING CO., C. H. Wilcox, Manager.

Capacity
3000 to 5000 pounds
Fine Meal
per hour.



**MUNSON
BROS.**
Utica, N. Y.

Atlanta Terra Cotta Co.

ARTISTIC WORK.
PROMPT DELIVERIES.
LOW PRICES.

Address all communications to
V. H. Kriegshaber, Gen'l Sales Agent, Atlanta, Ga.

POMONA TERRA COTTA CO., Pomona, N.C.

SEWER PIPE
Manufacturers
**SEWER, DRAIN, CULVERT and
TERRA-COTTA BLUE PIPE
and FIRE BRICK.**

L. B. BRICKENSTEIN,
SALEM, N. C.

Automatic Sprinkler Equipments.
STEAM AND HOT WATER HEATING.

MEDAL AND DIPLOMA AWARDED
WORLD'S COLUMBIAN EXPOSITION.

Grinnell Automatic Sprinklers

THOUSANDS OF FIRES IN ALL PARTS
OF THE WORLD
in which the damage has been confined to
limited area, and minimum amount, show
the value of this system.

Executive Offices—Providence, R. I.

**GENERAL FIRE EXTINGUISHER
COMPANY.**

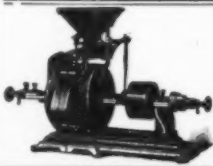
Information and proposals given on appli-
cation.

THE POWHATAN CLAY MFG. CO.

MANUFACTURERS OF

**CREAM WHITE
and other PRESSED BRICKS and
Fire Bricks, also Drain Tile.**

Write for prices. RICHMOND, VA.



Our French Burr Mills

Are used by the leading mills because they are the
Best. Investigation will convince you of their superi-
ority. Catalog and Discounts on application.

SPROUT, WALDRON & CO., MUNCY, PA.
Flour Mill Builders & Contractors.



BURR STONES

Also ROLLER MILLS, SMUT MACHINES and
GENERAL MILL MACHINERY.

Established 1847.

B. F. STARR & CO., Baltimore, Md.

"KEYSTONE" OPEN LINK
It is the Best, Strongest, Quickest
to Adjust, and Only Open
Link on the market
DROP FORGED from BAR STEEL.
Requires no tools to adjust, and
cannot work loose, open or fall out in use. **CLOSED.**



DROP FORGINGS

of every description in
IRON, STEEL, COPPER AND BRONZE.

KEYSTONE DROP FORGE CO.,
American & York Streets,
PHILADELPHIA, PA.

HELP WANTED.

Advertisements under this head will be in-
serted hereafter at the rate of one cent a word
for each insertion.

WANTED.—Traveling salesmen on salary or
commission to sell our steel pens to offices,
banks and stationers. Agents need apply.
Address **SPOT CASH PEN CO., Boston, Mass.**

WANTED.—Capable, reliable, enterprising
business man to take entire control of novel
device for advertising. Small capital required to
push device, not to buy it. Address **ADVER-
TISER, care Manufacturers' Record.**

SITUATIONS WANTED.

Advertisements under this head will be in-
serted hereafter at the rate of one cent a word
for each insertion.

A RELIABLE MAN having fifteen years ex-
perience on road selling to manufacturers
wants to represent a firm covering territory in
Central New York. **H., Manufacturers' Record.**

AGENCY—EXPORT—Gentleman having ten
years experience in export commission trade,
conversant with Spanish, French, German and
foreign market requirements, would represent
manufacturers to foreign trade, or take charge of
export department for a firm; is competent to
act as resident buyer. Address **"DONALD," Box
21, 1401 Third Avenue, New York.**

WANTED.—Position as general manager,
small Southern railroad. Thorough ex-
perience in construction, equipment and opera-
tion. Special attention to narrow gauge. Mas-
terful economies and success where others have
failed. Attention invited from communities in-
tending building independent connections.
W. V. Z., care Manufacturers' Record.



TANGYE'S
Hydraulic
Lifting Jacks,
Rail Benders,
and Punches,
ALSO
Screw Jim Crows,
Tube Expanders,
Ratchet Drills
and Hoists.
Large Assortment.

Catalogue gratis.
JOSEPH F. MCCOY COMPANY
26 Warren St., New York.



FLOURING MILL MACHINERY.
BUILT BY CONTRACT.
ROLLER BUHR SYSTEM
FRENCH BUHR MILLS
24 HOURS DAILY
OVER 20,000 IN USE A BOY
CAN OPERATE
A COMPLETE MILL
AND SHELTER LIT
THAN 100 FEET
PRIOR TO SEASON
OF 1894 EVERY MILL
WARRANTED
AND NORDYKE & MARMON
86 DAYST INDIANAPOLIS IND. U. S. A.



Write for Prospectus of our valuable book
SECRETS OF CANNING.
Tells all about
CANNING.
JOHN MURPHY & CO.
BALTIMORE, MD.

CANNING MACHINERY.

ESPECIALLY ADAPTED FOR THE SOUTH.
Full instructions furnished for putting up and operating your own plant, including processing of all the various canned goods. Prices from \$100 upwards; also Cans, Labels, Cases and Solder.

A. K. ROBINS & CO.
724 E. Pratt Street, BALTIMORE, MD.

FOR INFORMATION ABOUT U. S. MAIL CHUTES

WHICH ARE
A NECESSITY IN OFFICE BUILDINGS AND HOTELS.
Write to the sole makers,
THE CUTLER MFG. CO., Rochester, N.Y.
PATENTED. AUTHORIZED.

SPRINGS

MORGAN SPRING CO., Worcester, Mass.
Spring Makers. Solicit our prices.

FRANKLIN S. MILES, 207 Quarry Street,
PHILADELPHIA, PA.
ESTABLISHED 1866.



ALL KINDS OF

Machine Screws

Made to Order and Carried in Stock.
WRITE FOR ESTIMATES.

FREIGHT ELEVATORS

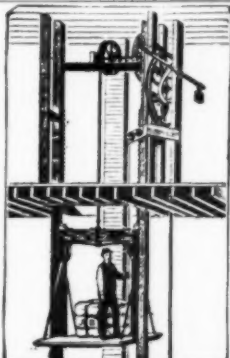
For Hand, Belt and Electric Power.
Lag Screws, Carriage and Machine Bolts,
Drift Pins and all kinds Special BOLTS
made by

PARKHURST BROS. & CO., - Indianapolis, Ind.

BATES' HAND ELEVATORS,

Pat. April 18, 1875. Reissued July 25, 1875.

OVER 10,000 IN USE.



Adapted for Warehouses, Stores, Factories,
Hotels, Public Institutions and every place where
merchandise, &c., is transferred from one story
to another.

JAMES BATES' SONS,
Successors to JAMES BATES,
COR. PRATT AND PRESIDENT STREETS
BALTIMORE, MD.



THE BURR PATENT STEEL SAFETY LIFT BLOCK

A Perfect Self-Locking Rope
Tackle Block.

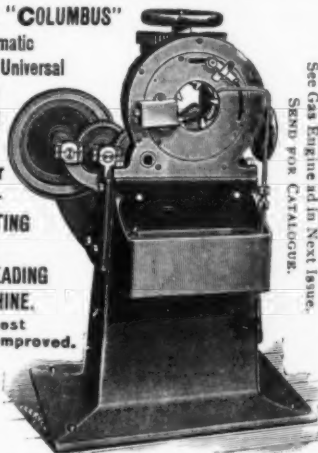
Runs as freely as an ordinary
rope tackle block.
Holds more securely than a
chain block.
Locks instantly and does not
cut the rope.
Allows the load to be lowered
safely and slowly, the operator
using only one hand.
Cannot stick nor jam when
the load is to be lowered.

"I have tested the Burr Self-
locking Steel Tackle Block and
find it the most practical, quick
and reliable safety-lift I know
of."
J. C. DEBES,
Supt. of the C. & G. Cooper Co.,
Mt. Vernon, O.

Adopted by the Penna. R. R. Co.
Send for circulars and prices.
The BURR MANUFACTURING CO.
823 Society for Savings Bldg.,
Cleveland, Ohio, U.S.A.

THE "COLUMBUS" Automatic Universal

Feed
Hand and
Power
PIPE-
CUTTING
AND
THREADING
MACHINE.
Latest
Improved.



See Gas Engine ad in Next Issue.
Send for Catalogue.

COLUMBUS MACHINE CO. 223 W. Broad St.
COLUMBUS, O.

PERRY ANDREWS & BRO.

Artesian
Well Contractor
and Driller,

Can Furnish Full Outfits
and all Artesian Well
Machinery,

19 Morrison Avenue,
ATLANTA, GA.



WELL DRILLING MACHINERY,

MANUFACTURED BY

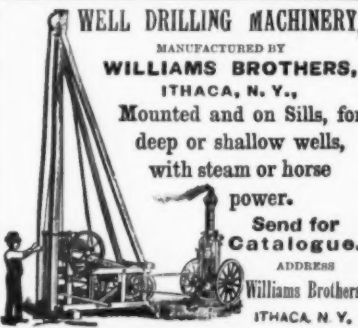
WILLIAMS BROTHERS,

ITHACA, N. Y.

Mounted and on Sills, for
deep or shallow wells,
with steam or horse
power.

Send for
Catalogue.

ADDRESS
Williams Brothers
ITHACA, N. Y.



ESTABLISHED 1844.

BUCK LEAD BEST WHITE PAINT.

ARCHITECTURAL PLASTER ORNAMENTS.

SAMUEL H. FRENCH & CO.
PHILADELPHIA.



A. J. BECKLEY & CO., Garwood, N. J.

The Life of an Engine

Long or Short,
according to the
care bestowed up-
on its vital parts.



THE DETROIT SIGHT FEED LUBRICATORS

protect these vital
parts by keeping them
perfectly lubricated,
thus preventing wear
from friction. Nearly
400,000 Detroit Lu-
bricators are in use.
Our Catalogue, show-
ing our different styles for every kind of
engine, will be sent on application.

DETROIT LUBRICATOR CO., Detroit, Mich.

THE ABC STEAM TRAPS



Class B. Non-Return Trap has No Stuffing
Boxes to stick or leak.

We manufacture Steam Traps for all duties,
High and Low Pressures, returning the Con-
densation back into Boiler or discharging to
Hot Well, Tank or Atmosphere.

Send for Catalogues A, B and C.
ALBANY STEAM TRAP CO., Albany, N. Y.

WE INVITE ATTENTION

To our Factory for the
Manufacture of

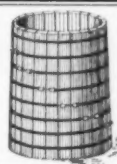
Cypress Tanks and Cisterns

Of Every Description.

We would be glad to make estimates and quote
prices, and believe that we can make it manifestly
to your advantage to trade with us. LET US
KNOW YOUR WANTS.

The CYPRESS LUMBER CO.

Apalachicola, Fla.



TANKS

We manufacture all kinds and
sizes of CYPRESS TANKS.
Write for Catalogue.
G. M. DAVIS & SON, Palatka, Fla.



THE "New South" BRICK MACHINERY.

Mfd. by **J. C. STEELE & SONS,** Statesville, N. C.
Send for catalog and price list.

Mueller Corp. Cocks

are branded "H. M." Take no other.
This brand is guaranteed first-class.
We make Corporation Cocks to fit all
styles of machines at lowest prices.



FOR SALE BY

H. MUELLER MFG. CO., Decatur, Ills.

Absolutely Pure.

No Lead used in
this metal.

Listen to its ring.



HOO-HOO

BABBITT METAL.

ST. LOUIS, MO.

For sale at makers' price by the follow-
ing well-known firms:

H. A. Rogers New York City

The Fairbanks Co. New Orleans

Saml. Harris & Co. Chicago

E. C. Atkins & Co. Memphis

Beals & Co. Buffalo

Strong, Carlisle & Turney Cleveland

Palmer Hardware Co. Savannah

Somers, Fittler & Clarke, Ltd. Pittsburgh

Morley Bros. East Saginaw, Mich.

Crane, Churchill & Co. Omaha, Neb.

Lombard Iron Works & Supply Co.,
Augusta, Ga.

A. M. Avery Pensacola, Fla.

Chas. M. Whitlock Wilmington, N. C.

Cotton States Belting & Supply Co.,
Atlanta, Ga.

Robt. E. Brieseneck Brunswick, Ga.

E. Corey & Co. Portland, Me.

Congdon, Carpenter & Co., Providence, R. I.

Hinckley & Egery Iron Co. .. Bangor, Me.

A. W. Chesterton & Co. Boston

Bailey-Lebby Co. Charleston, S. C.

J. S. Schofield's Sons & Co. .. Macon, Ga.

Odell Hardware Co. Greensboro, N. C.

Coffin & Leeper City of Mexico

Thos. C. Basshor & Co. Baltimore

Queen City Supply Co. Cincinnati, O.

ALEXANDER BROS.
BEST OAK BELTING.
PHILADELPHIA.

STERLING EMERY WHEEL
MFG. CO.
TIFFIN, OHIO.
Correspondence solicited.

LOWELL
TEXTILE
SCHOOL

The Most Complete Textile School in America.
Thoroughly practical instruction given
In All Branches of Textile
Manufacturing.
New machinery. Send for catalogue.
C. P. BROOKS, Director,
Lowell, Mass.

LEVIATHAN
Belting



Is the Strongest,
Runs the Most
Evenly and Best
adapted for Cot-
ton, Woolen, Saw
and Planing Mills,
Brick and Tile
Works and

HEAVY DRIVING
GENERALLY.

MAIN
BELTING
CO.

1219-1235 Carpenter
Street,
PHILADELPHIA.
120 F and St.
BOSTON.
55 & 57 Market St.
CHICAGO.



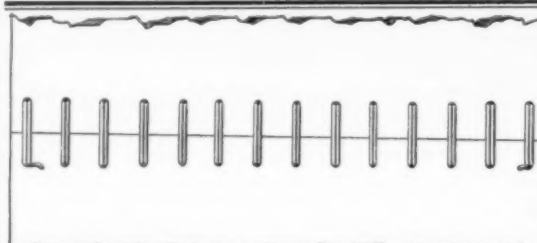
The "Original Gandy"

Lowest Cotton Duck Belting.
Especially adapted for Main Drivers, Saw
Mills, Cotton Gins, Cotton Presses, and for
all places where belts are subjected to mois-
ture or atmospheric changes, the "GANDY"
stands paramount.

For further information, prices, etc., write

The Gandy Belting Co.
BALTIMORE, MD.

SOUTHERN DIRECT AGENTS.—Whitney & Bloo Co., New Orleans, La.; Graton & Knight Mfg. Co., Atlanta Ga.; Bowler &
Shinn, Nashville, Tenn.; Smith-Courtney Co., Richmond, Va.; W. E. Caldwell Co., Louisville, Ky.
L. M. Rumsey Mfg. Co., St. Louis, Mo.



Globe Composition
WIRE - LACE.
BELT

WRITE FOR PRICES.
J. M. HAYDEN & CO.
No. 68 Pearl Street,
GRAND RAPIDS, MICH.



BELT HOOKS

MANUFACTURERS,
SAWYER HARDWARE & SUPPLY CO.,

PAWTUCKET, R. I.

GOLDEN'S FOUNDRY & MACHINE CO., Columbus, Ga.

Manufacturers of

Send for Price List
and
Discount Sheet.

Hangers, Shafting, Machine Moulded Pulleys.

COUPLINGS, PILLW BLOCKS, FLOOR STANDS, COLLARS, &c.

HOOPES & TOWNSEND,

Philadelphia, Pa.

MAKE RIVETS

IN SOLID DIES.

No. 9 x 1/4 in. to 1 1/2 x 42 in.

EUREKA FIRE HOSE CO.

13 BARCLAY STREET,

NEW YORK CITY.

ORIGINAL MANUFACTURERS

"Eureka"

THREE PLY.

"Paragon"

TWO PLY.



"Red Cross"

ONE PLY.

Cotton Hose

ALL SIZES.
RUBBER LINED.

"U. S." BRAND RUBBER LINED COTTON FIRE HOSE.

Adopted as the Standard Factory Fire Hose by the Associated Factory Mutual Fire Insur-
ance Companies, for Factory and Mill Fire Protection.

LINEN HOSE (LINED AND UNLINED) ALL SIZES.

EUREKA BELTING, &c.

THOS. K. CAREY & BROS. CO., AGENTS.

26 Light Street, - BALTIMORE, MD.



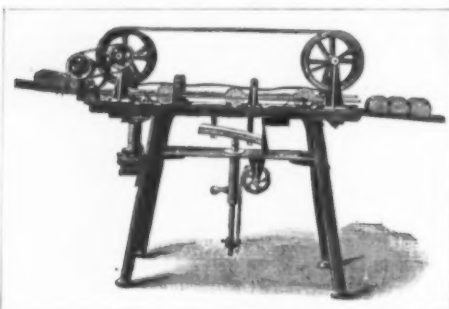
PIN your faith to a line which has always proven
a winner. It will have many valuable im-
provements for the season of 1898. Send for our
latest catalogue. It is now ready. It will tell you
all about it.

THE SCHNEIDER & TRENKAMP CO.

Chicago, Illinois.

MENTION THIS PAPER.

Cleveland, Ohio.



BURT LABELLING MACHINES.

OUR LABELLING MACHINES ARE SOLD
UNDER GUARANTEE.

SEND FOR CATALOGUE OF PARTICULARS.

BURT LABELLING MACHINE CO.

851 Equitable Building,

BALTIMORE, MD.



BELT is very well able to stand up for itself, and it is not made of the hide from the shanks either. If you have not used it there is still one good thing in the world which is worth looking up. We make it.

J. E. RHOADS & SONS,
239 Market Street, Philadelphia, Pa. **WILMINGTON, DEL.**

COCHECO LEATHER BELTING.

We Make Other Grades Also.

**ALL OAK
BARK TANNED.**

There's Our
SUPERIOR Lighter, but
even Better
than Cochecho in many places.
DYNAMO For Electrical
Work.

LIGHT DOUBLE Special Belt Made to Order.

WATERPROOF A BELT that really Sheds Water.

Some Specialties:

Whole Finished Oak Butts, Sides and Centers.
Whole Finished Shoulders.
Straight Cut Bellies, Belly Strips, Back Straights.
Finished Shoulders for Goodyear Inner Soles.
Finished Shoulders for Bicycle Seats, Russet and Black. Oriole Cut Lace for Bicycle Saddles.
Valve Leather, Washer Leather, Picker Leather.
Hydraulic Packing Leather.
Pulley Lagging, Loom Straps, Harvester Straps.
Hame Straps and Hame Strings, Russet or Black.
Bell Straps, Cow Ties.

Contracts

FOR . . .
Belting and Strapping for manufacturers.
Belting and Strapping for mills.
Belting Electrical Plants.
Lace Leather in Large Quantities.

I. B. WILLIAMS & SONS

MAIN OFFICE AND FACTORY:

DOVER, N. H.

CLEVELAND BRANCH:
102 Superior St.

CHICAGO BRANCH:
205 Lake St.

CHICAGO BELTING CO.

Manufacturers of RELIANCE LEATHER BELTING.

Main Office & Factory,
67 and 69 S. Canal Street, Chicago.
316-318 St. Charles St., New Orleans.
Cor. Main & Jefferson Sts., Memphis.
221 Olive St., St. Louis, Mo.

JEWELL BELTING CO.

MANUFACTURERS OF

Short Lap = = = Oak Belting.

JEWELL EXTRA

--- HARTFORD ---
BRAND

JEWELL
DYNAMO



For Heavy Work or
Slow Running Machinery.



For High Speed.
Like the Extra, except in Thickness and
Weight.



For Great Speed.
Warranted to Fur-
nish Steady Current

TANNERIES: Jellico, Tenn.
Rome, Ga.

MAIN OFFICE:
HARTFORD, CONN.

BRANCHES:
175-177 Lake St., CHICAGO.
240-250 W. Somerset St., PHILA.

The BRADFORD BELTING CO.

203 Walnut Street, CINCINNATI, OHIO.

SOLE MANUFACTURERS OF



"Monarch" and "Bradford
Dynamo" Rivetless . .
Leather Belting.

ALSO DEALERS IN

Rubber Hose, Rubber Belting, Packing,
Electrical Supplies and Wood
Split Pulleys.

CHAS. A. SCHIEREN & CO.

Oak Leather Belting.

45, 47, 49 Ferry St., New York.
46 & 48 S. Canal St., Chicago.

226 N. 3d St., Philadelphia.
119 High Street, Boston.

OAK BELTING TANNERY,
LACE LEATHER TANNERY,

BRISTOL, TENN.
BROOKLYN, N. Y.

"OUR NAME AND BRAND A GUARANTEE OF QUALITY."

HIGH-GRADE RUBBER GOODS.



Belting, Packing, Tubing, Springs, Valves,
Gaskets, Mats and Matting,
Rubber-Lined Linen and Cotton Hose.
SEND FOR SAMPLES, ETC.

N. J. CAR SPRING & RUBBER CO., Jersey City, N. J.

BOSTON BELTING CO.

JAMES BENNETT FORSYTH, Mfg. Agent and Gen. Mgr.

Manufacturers of

BELTING, HOSE of all kinds,

Packing, Gaskets, Valves, Tubing, Mats, Springs,

RUBBER COVERED ROLLERS

and superior rubber goods for all mechanical purposes.

254-258-260 Devonshire St., Boston.

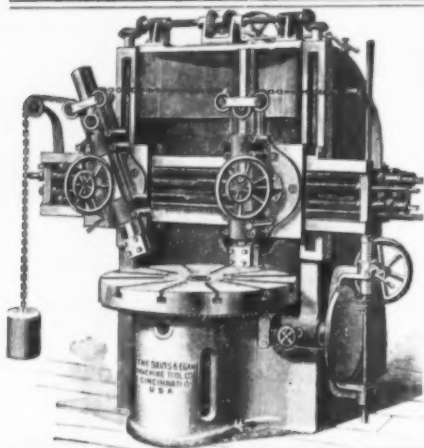
100 and 102 Reade St., New York.

SELLING AGENTS.

T. K. Carey & Bros. Co., Baltimore. Townner & Co., Memphis. Chicago Belting Co., New Orleans.
Graton & Knight Mfg. Co., 38 and 38 W. Alabama St., Atlanta, Ga.



CORRESPONDENCE SOLICITED.



The American Tool Works Co.

Successors to THE DAVIS & EGAN MACHINE TOOL CO.

STANDARD MACHINE SHOP EQUIPMENTS.

Lathes, Planers, Shapers, Boring Mills, Milling Machines, Screw Machines, Monitor and Turret Lathes, Upright and Radial Drills, Bolt Cutters, Pulley Lathes, Shafting Lathes, Punches and Shears, Etc.

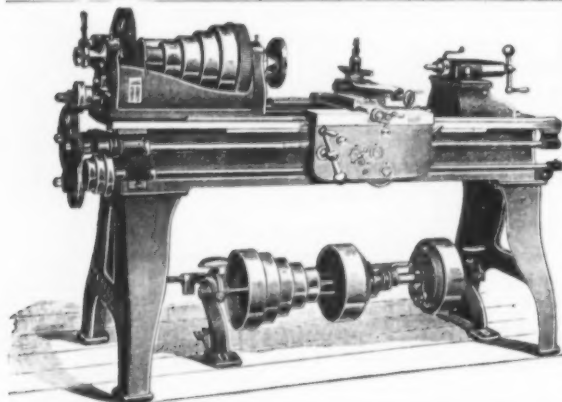
CINCINNATI, OHIO, U. S. A.

NEW YORK:
107 Liberty Street.

CHICAGO:
68 S. Canal Street.

BOSTON:
36 Federal Street.

ST. LOUIS:
720 N. Second Street.



ENGINE LATHES.

10" to 30" SWING INCLUSIVE.

SCREW CUTTING FOOT LATHES.
PLAIN FOOT LATHES.
BENCH LATHES.
HAND LATHES.
WOOD TURNING LATHES.
CHUCKING LATHES.
STUD AND BOLT LATHES.

MACHINE TOOLS

GENUINE Babbitt Metal for Spindle Bearings in place of cast iron, bronze or gun metal.

F. E. REED COMPANY, Worcester, Mass.

THOS. K. CAREY & BROS. CO., Agents, Baltimore, Md.

ENGINE LATHES.

FIFIELD TOOL CO.

LOWELL, MASS., U. S. A.

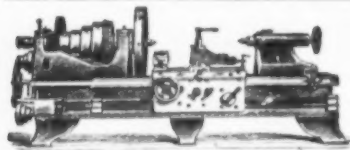


ENGINE LATHES 17" to 72" SWING.

Photo-cuts, description and prices on application.

Two acres devoted entirely to manufacturing Engine Lathes.

MORTON, REED & CO., Agents, - BALTIMORE, MD.



HAND...TURRET
SCREW-CUTTING

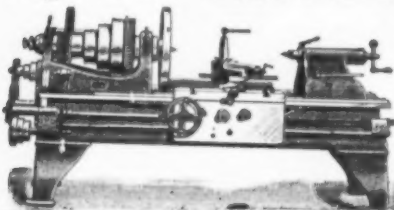
LATHES AND PLANERS

ARE MANUFACTURED BY

DRAPER MACHINE TOOL CO., WORCESTER, MASS., U. S. A.

WRITE US FOR PRICES AND CUTS.

High-Class ENGINE LATHES.



PATENTED
With NEW and VALUABLE FEATURES
Made only by
THE BRADFORD MILL CO.
CINCINNATI, OHIO, U. S. A.

Charles Churchill & Co., Ltd., London and Birmingham; Schuchardt & Schutte, Berlin, Brussels, Vienna, Stockholm; Adphe Janssens Paris, France; The E. A. Kinsey Co., Cincinnati, O.; J. A. Fay & Egan Co., Chicago, Ill.; J. W. Wright & Co., St. Louis, Mo.; Pacific Tool & Supply Co., San Francisco, Cal.; Philadelphia Bourse, Philadelphia, Pa.

LATHES

16 in. to 36 in. Swing.



THE WRIGHT CO.

LOWELL, MASS.

TOOLS AND SUPPLIES

TOOLS FOR ALL TRADES.
BOLTS AND SCREWS.
BELTING.

EMERY WHEELS.

GLUE HEATERS.

VENEER PRESSES.

CIRCULAR SAWS, &c.

HAMMACHER, SCHLEMMER & CO.

209 Bowery, - NEW YORK.



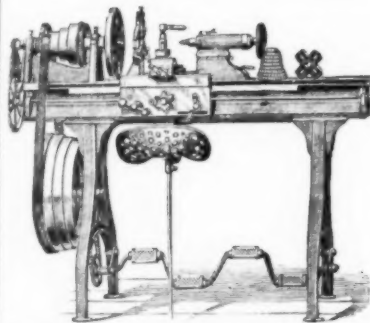
FACE TO FACE
WITH A

COLD
FACT

Face to Face with Cold Facts.
WHOEVER

Makes a specialty of anything has the advantage in that line. Nobody denies this.
WE ARE SPECIALISTS in Dies, Reamers, Tempered Tools, Cutters, Small Brass Goods and Special Machinery.
Can save you money and please you, too. Proof is easy. An inquiry costs nothing. Try us.

The Tampograph Co., Box C., Wilmington, Del.



LATHES

FOR THE

Electrician,
Experimenter,
General Machine
Shop Work.

Our lathes are furnished for steam or foot-power
Screw Cutting Lathes from 9" to 13" swing; elegant in design; superior in workmanship.

W. F. & JOHN BARNES CO.

221 Ruby Street, ROCKFORD, ILL.
THOS. K. CAREY & BROS. CO., Agents,
BALTIMORE, MD.



COMPLETE
LINE
UPRIGHT
DRILLS.

SEND
FOR
CATA-
LOGUE.

From a
Light
Friction
Disk
DRILL
to a
42-inch
Back
Geared
Sliding
Head
DRILL.

HANSELL SPRING COMPANY
MANUFACTURERS OF
RAILWAY & MACHINERY SPRINGS
OF HIGH GRADE CRUCIBLE STEEL, OIL TEMPERED.
JAPANNED, TINNED & COPPERED. Send For Catalogue 915
FURNITURE SPRINGS. ALLING ST. NEWARK, N.J.

D. SAUNDERS' SONS
MANUFACTURERS OF PATENT**STOCKS AND DIES**

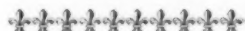
Threading Pipe $\frac{1}{4}$ in. to 6 in. The larger sizes have CUTTING OFF attachment. These Tools are Light, Strong and of Superior Design and Finish. Also

PIPE THREADING MACHINES

$\frac{1}{4}$ in. to 18 in., Hand or Power. Send for Catalogue to
31 Atherton Street, YONKERS, N. Y.

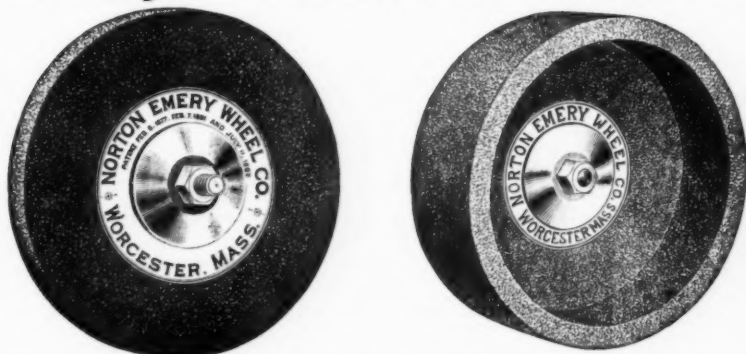
**MORSE TWIST DRILL
AND MACHINE CO.**

NEW BEDFORD, MASS., U. S. A.



Manufacturers of

**TWIST DRILLS, CHUCKS,
REAMERS, - - MILLING
CUTTERS, TAPS AND
DIES, AND MACHINISTS'
TOOLS.**

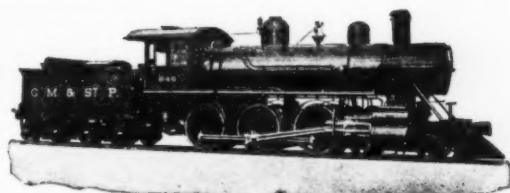
**NORTON
Emery and Corundum Wheels.**

Contain Nothing but Cutting Properties. Are Free from Dust or Odor. Fast Cutting and Durable. Porous and Open.
Do not Heat the Work.

... WILL WORK EQUALLY WELL WET OR DRY ...

Send for New Illustrated Catalogue.

THOMAS K. CAREY & BROS. CO., Agents, BALTIMORE, MD.

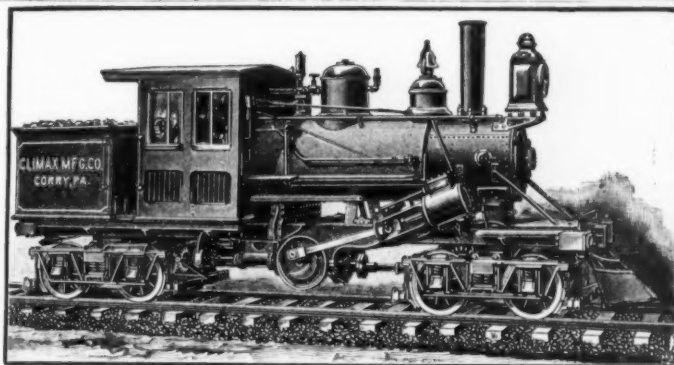
**BALDWIN LOCOMOTIVE
WORKS.**

No. 846.—Built for the Chicago, Milwaukee & St. Paul Railway.

SINGLE EXPANSION and COMPOUND LOCOMOTIVES

Adapted to every variety of service and built accurately to standard gauges and templates. Locomotives for Logging Railroads and Sugar Estates, Electrical Locomotives, Steam Tramway Motors, Mine Locomotives, Furnace Locomotives.

BURNHAM, WILLIAMS & CO. Philadelphia, Pa.

**Tramway Locomotives and Cars** For Steel, Iron, Wood or Pole Road.

Weight of Locomotives from eight to thirty-five tons. Every wheel a driver. Adapted for steep grades, sharp curves and uneven track. CATALOGUES FREE.

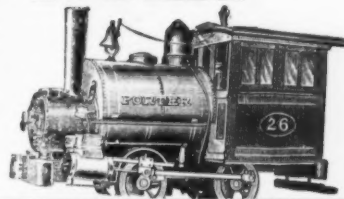
CLIMAX MFG. CO., BUILDERS, CORRY, PA.

SPECIAL OFFER.

On bona fide request of any railroad contractor, or mine, mill, furnace, plantation, logging or other railway owner or operator, or other prospective buyer, we will mail free our new 216 page pamphlet describing 354 designs Light Locomotives, steam, electric and compressed air. To accommodate persons not requiring locomotives, a copy will be sent on receipt of 50 cents.

H. K. PORTER & CO.

6th Avenue, PITTSBURGH, PA.
Locomotives, narrow and wide gauge, always on hand.

**Hundreds OF TESTIMONIALS**

SHOWING THESE CASTINGS HAVE PROVED THE MOST SATISFACTORY FOR ALL PURPOSES REQUIRING STRENGTH AND DURABILITY.

C. F. HAUGHIAN, President.
F. E. CANDA, Vice-President.
C. J. CANDA, Secretary.
J. G. DUNSCOMB, Treasurer.

CHROME STEEL WORKS,

Kent Ave., Keap and Hooper Sts.,
BROOKLYN, N. Y.

CARBORUNDUM

Best Wheel Made for Saw Gumming.
Will not Burn or Case Harden.

Replacing Emery in Grinding and Polishing and Ferro-Silicon in Steel Making.



THE LATEST AND BEST. SEND FOR CATALOGUE AND PRICES.

WM. W. ACHESON, Southern Representative, Box 58, Jacksonville, Fla

**PURE SAPPHIRE
CORUNDUM AND EMERY WHEELS.**

THE BEST FOR ALL PURPOSES.

WRITE FOR PRICES.

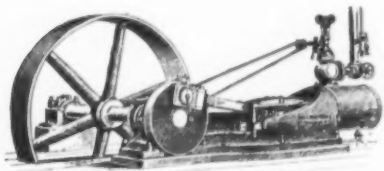
SCRANTON CORUNDUM AND EMERY WHEEL WORKS,
SCRANTON, PA.

SALES AGENTS:

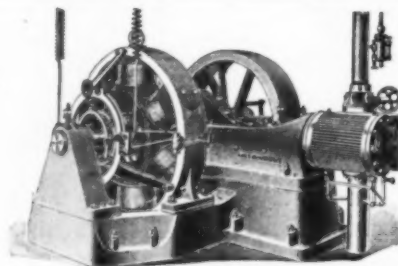
BAILEY-LEBBY CO., - Charleston, S. C.
 WM. KEHOE & SON, - Savannah, Ga.
 AVERY & McMILLAN, - Atlanta, Ga.
 SALEM IRON WORKS, Salem, N. C.
 HAUBTMAN & LOEB, - New Orleans, La.

SALES OFFICES:

38 Cortlandt Street, NEW YORK, N. Y.
 3 Oliver Street, - BOSTON, MASS.
 512 Fidelity Mutual Building,
 PHILADELPHIA, PA.
 1452 Monadnock Building,
 CHICAGO, ILL.



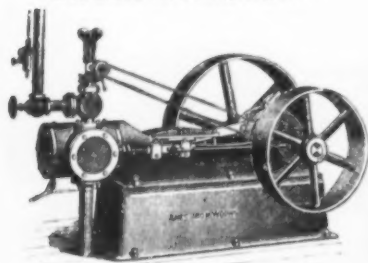
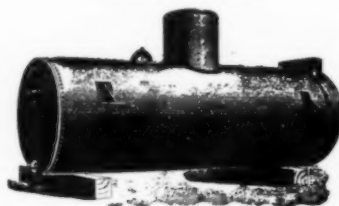
Balance Valve
Side Crank Throttling Engine.



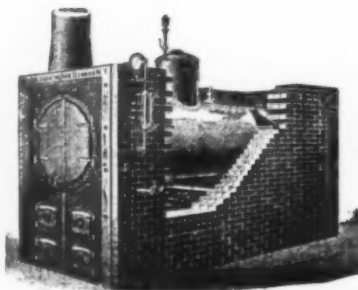
High Grade
Direct Connected Automatic Engine.

AMES IRON WORKS,

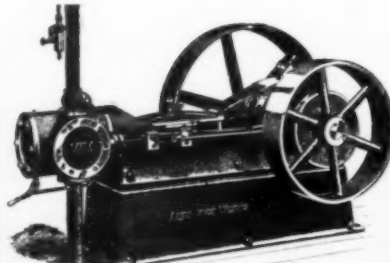
OSWEGO, N. Y.



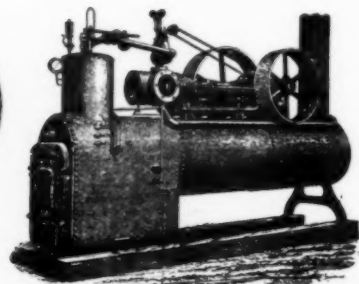
Balance Valve
Center Crank Throttling Engine.



Horizontal Tubular Boilers.



Medium Grade Automatic.

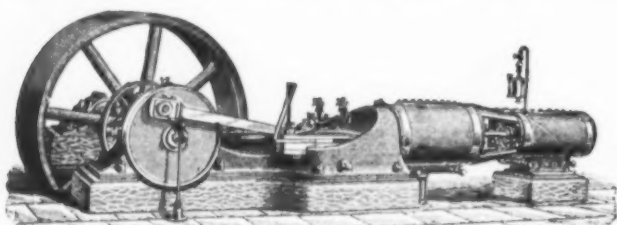


BUCKEYE ENGINE COMPANY,

SALEM, OHIO.

BALTIMORE OFFICE—Manufacturers' Record Building.

J. T. CASTLE Sales Agent.



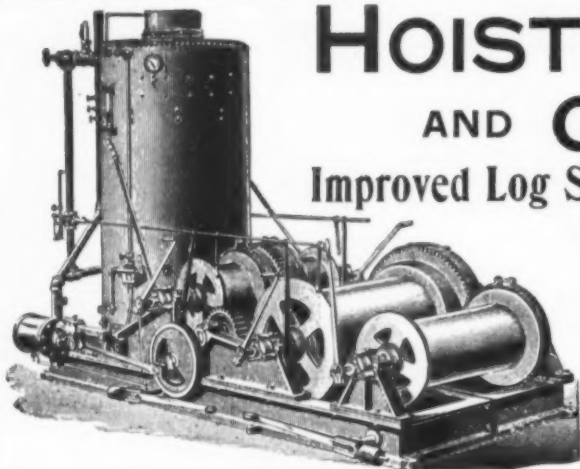
Correspondence solicited from parties wanting high-grade work.

Horizontal and Vertical ENGINES

Simple, Compound and Multiple Cylinder,
 Condensing and Non-Condensing,
 for all Classes of Work.

HIGHEST ATTAINABLE ECONOMY GUARANTEED.

KEELING MACHINERY CO., Sales Agents, 21 South Forsyth St., ATLANTA, GA.



HOISTING ENGINES AND CABLEWAYS.

Improved Log Skidding & Pull Boat Machinery.

Why is our Skidder Superior to any Other?

- 1—We furnish a larger Boiler.
- 2—We furnish a larger Engine.
- 3—We furnish a Self-Lubricating Block.
- 4—Our carriage contains features new and novel, which will recommend it over all others.
- 5—We furnish better Cables.
- 6—Our prices are based on a fair and legitimate profit.

LAMBERT HOISTING ENGINE CO.

NEWARK, N. J.

C. S. BURT
 CO., Ltd. Agents,
 New Orleans,
 La.
 732 and 734
 Union Street.

THE MURRAY IRON WORKS CO., BURLINGTON, IOWA.

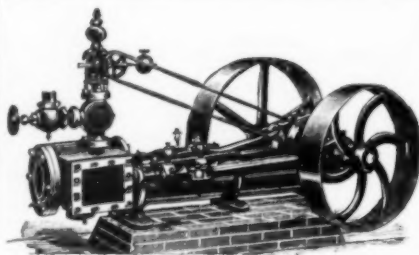
SIoux CORLISS ENGINES.

Simple and Compound. Direct Connected when desirable. These Engines are built from new patterns. They are not old fashioned nor of conventional design, but they embody the latest ideas in mechanical engineering. They excel in regulation, economy and efficiency, and the World's Fair diploma awarded them contains these among other words of high praise:

"ADAMIRABLY ADAPTED FOR ELECTRIC LIGHTING."
 Our No. 28 Catalogue takes up and illustrates all points. Send for it. We carry in stock eight of the sizes of simple engines most in demand, and can build compounds in a reasonable time.

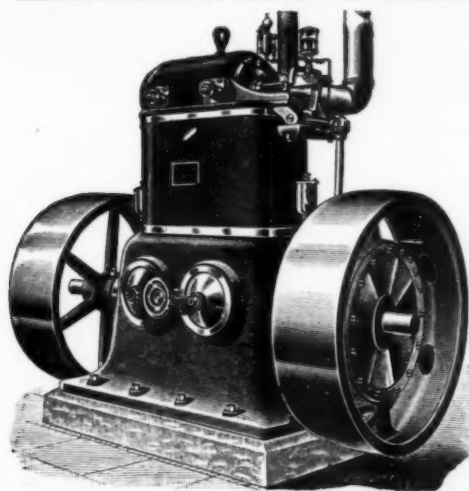


of the sizes of simple engines most in demand, and



Counter-Balanced
 Center Crank Engines,
 MANUFACTURED BY
 The HIGH POINT MACHINE WORKS,
 High Point, N. C.

ALSO MANUFACTURERS OF
 Variable Feed Saw Mills and Cotton Mill Castings.



**THE WESTINGHOUSE MACHINE COMPANY, Manufacturers.
WESTINGHOUSE, CHURCH, KERR & COMPANY, Engineers.**

We believe that we represent a combination of Manufacturing Facilities and Engineering Experience, capable of giving the most efficient service to those interested in the generation of power—Steam, Gas or Electric.

AS MANUFACTURERS, WE BUILD

Steam Engines—5 H. P. to 5000 H. P. The kind used by those whose business success bears witness of their good judgment.

Gas Engines—Haven't dared to mention them before; selling themselves too fast. Our capacity is now greatly enlarged and we are just beginning to get the better of our orders. Some sizes in stock for prompt delivery.

Mechanical Stokers—The kind most extensively used; the kind that is all the name implies.

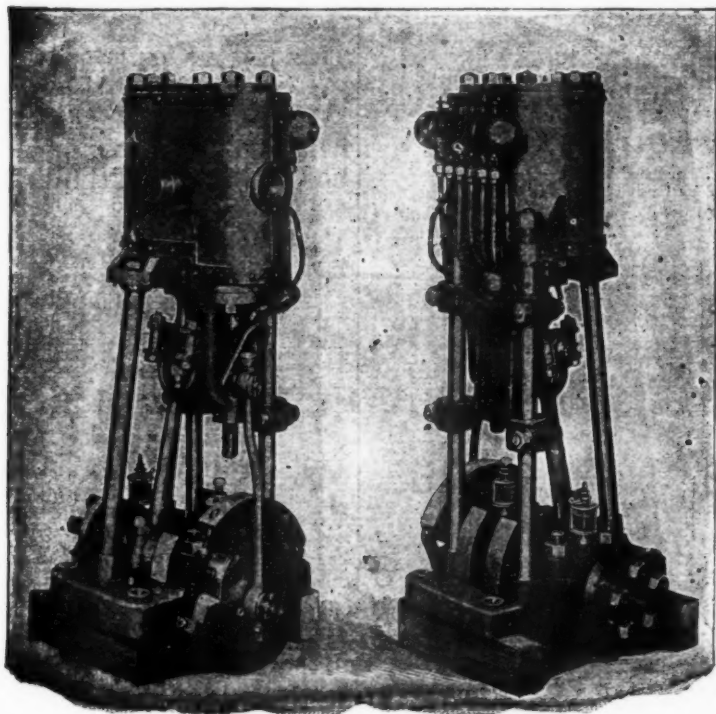
Ice and Refrigerating Machinery—For those who want the best that mechanical skill can produce and money can buy.

Shops at PITTSBURGH, PA. and CHICAGO, ILL.

OFFICES:

NEW YORK, 26 Cortlandt Street. BOSTON, 53 State Street. CHICAGO, 171 La Salle Street.
PITTSBURGH, Westinghouse Building. DETROIT, Union Trust Building.
PHILADELPHIA, M. R. MUCKLE, Jr., & CO., Drexel Building.

ENGINES, BOILERS, SAW MILLS, PRESSES.
Write to **GENERAL MANUFACTURERS OF**
MECKLENBURG IRON WORKS, Charlotte, N. C. MACHINERY



THIS ENGINE is one of a class furnished the U. S. Lighthouse Service for electric lighting. Cylinders 5" x 5", 500 revolutions, 100 lbs. steam, 10 Horse-Power. Weight of engine complete, 306 lbs. Occupies a floor space of 18" x 11". Height from centre of shaft, 28 7/8". Sight feeds with oil ducts to all moving parts.

W. D. FORBES & CO.

64 13th Street,
Two blocks from 14th St. Ferry.

HOBOKEN, N. J.

OUR NEW 1897

Gas and Gasoline ENGINES

ARE THE

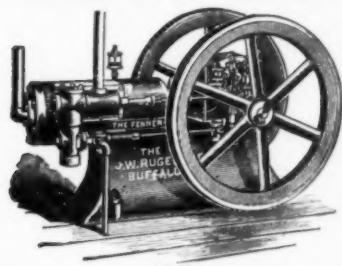
MOST RELIABLE.

Highest Efficiency for Electric Lighting,
Giving a Regular Steady Speed.

Simplest and Best for General Power,
Being Clearly and Perfectly Safe.

Write for our new Catalogue and state kind of work you require engine for, amount of power, and whether you will use gas or gasoline, and we will make you proposition that will bring the order.

Mention the Manufacturers' Record.



5 H. P.

THE J. W. RUGER MFG. CO.

314-322 Chicago Street,
BUFFALO, N. Y.

PITTSBURGH FEED WATER HEATERS.

Made in all Styles Open and Closed Types. Complete Line.

Write for Illustrated Cat. **PITTSBURGH FEED WATER HEATER & ENG. CO., Pittsburgh, Pa.**

ENGINES ESTABLISHED 1851 **BOILERS**

STRUTHERS WELLS & CO.

ALL KINDS OF IRON TANKS & SMOKE STACKS BUILT IN ANY PART OF THE COUNTRY

WARREN-PENNA

STANDPIPES CORRESPONDENCE SOLICITED TANKS

ALL CLASSES OF STATIONARY AND PORTABLE BOILERS FROM STOCK OR FROM SPECIFICATIONS

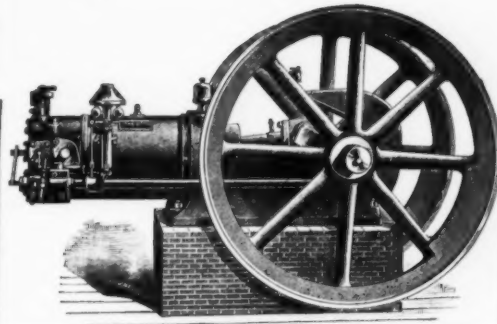
"OTTO" Gas Engines,

ALL SIZES.

THE "OTTO"
GAS ENGINE WORKS,
Philadelphia.

SMITH-COURTNEY & CO.
Richmond, Va.

50,000
IN USE.



We are the Sole Makers of the
ORIGINAL
Lewis Gas Engine
IMPROVED.

Most Economical Engine Built. Simple in Construction, so anyone can operate it. Will out-live any engine on the market, because it is built right. We also give MORE POWER for the money invested than you can get elsewhere.

If you want an Engine, let us hear from you.

J. Thompson & Sons Mfg. Co.
BELOIT, WIS., U. S. A.

FRONTIER Gasoline and Gas Engines, Vertical, 1 to 10 H. P.
Tandem, 10 to 100 H. P.
An Impulse at Every Revolution.

FRONTIER IRON WORKS, Guin and Chene Sts., Detroit, Mich.
THE VARYAN CO., Eastern Agents, Times Building, New York City.

GAS and GASOLINE ENGINES

1 to 100 horsepower. New illustrated catalogue free.

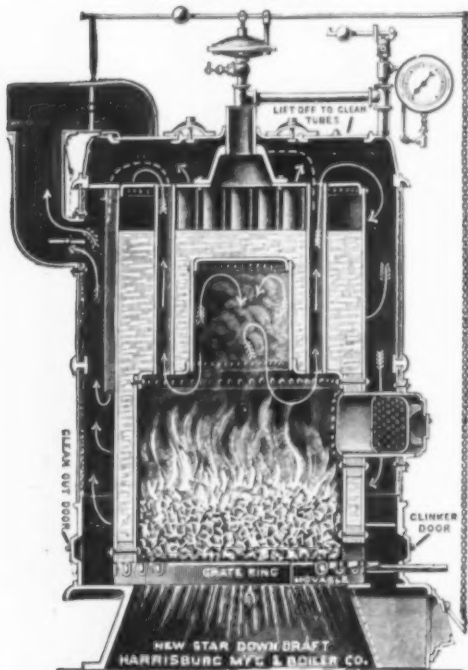
LAMBERT GAS & GASOLINE ENGINE CO., 710 W. Third Street, Anderson, Ind.



NEW STAR DOWN DRAFT BOILER

THE NEW STAR
DOWN-DRAFT STEAM BOILER

Built of Steel, 60,000 T. S.



Heat travels three times the length of the Boiler.
Capacity, from 235 to 1,600 square feet direct steam radiation.

for STEAM and HOT WATER.

Sizes for Steam 235 to 1600.
for Hot Water 410 to 2400 square feet direct radiating surface.

OPERATION.

Boiler is operated either straight or down draft, simply by opening and closing dampers in connections.

Efficiency tubes being of charcoal iron and shell of soft steel or iron, heat is transmitted quicker to the water than if the material was cast iron.

Economy is obtained by keeping heat and gases in contact with water surface for the distance of three times the length of boiler.

Fire Box is large and deep enough to carry fire and give heat for hours without attention.

Grates are of improved shaking and dumping pattern. All effective surface; clean perfectly around fire box of boiler. Slicing bar can be used through opening in front of boiler.

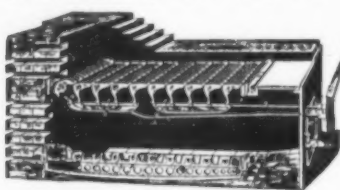
Cleaning heating surface is rarely necessary, owing to its position. Covers are provided in dome to pass brush through tubes. All soot, etc., dropping into space between casing and boiler, can be removed through doors in section around base.

We wish every Plumber and Steam Fitter to apply
for a copy of our Catalogue; it will prove interesting.

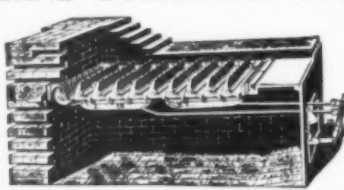
HARRISBURG MFG. & BOILER CO.
HARRISBURG, PA.

McCLAVE'S IMPROVED GRATE and ARGAND STEAM BLOWER

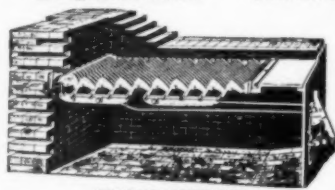
Send for Illustrated Descriptive Catalogue C.
For BOILER and Other Furnaces.



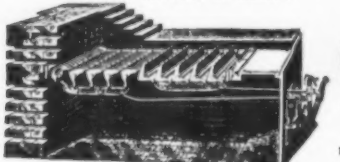
NORMAL POSITION OF GRATE.



WHOLE CUT-OFF MOVEMENT.



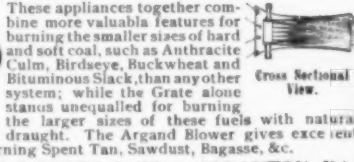
SHAKING MOVEMENT.



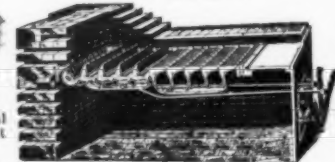
DIVIDED CUT-OFF MOVEMENT.



Argand Steam Blower.



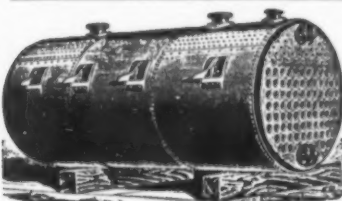
Cross Sectional View.



DIVIDED CUT-OFF MOVEMENT.

These appliances together combine more valuable features for burning the smaller sizes of hard and soft coal, such as Anthracite, Culm, Birdseye, Buckwheat and Bituminous Slack, than any other system; while the Grate alone stands unequalled for burning the larger sizes of these fuels with natural draught. The Argand Blower gives excellent results in burning Spent Tan, Sawdust, Bagasse, &c.

McCLAVE, BROOKS & CO. SCRANTON, PA.



High-Grade **BOILERS**
ENGINES

and Complete Steam Power Outfits.

PIPE FITTING, VALVE AND
ENGINEERS' SUPPLIES.
BURROWS & CLARKE
AUTOMATIC PUMP GOVERNOR.

E. KEELER CO.
WILLIAMSPORT, PA.

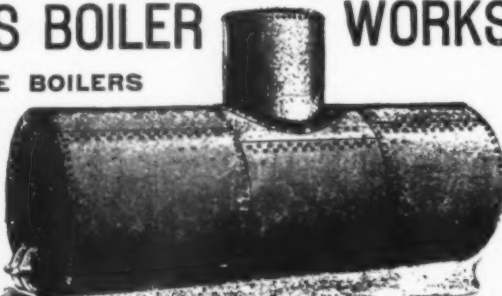
HARTLEY'S BOILER WORKS

HIGH GRADE BOILERS

STANDPIPES, TANKS,
SMOKESTACKS, ETC.

A full line of
BOILERS,
FRONTS,
GRATE BARS and
Other Fixtures
always on hand.

All kinds of BOLTS made to order
**MONTGOMERY,
ALA.**



**THE MEANS & FULTON
IRON WORKS**
RO. PRESTON MEANS,
JOHN H. MEANS,
VICE-PRES.
W. M. FULTON,
MANAGER.
AVENUE A AND 17TH STREET, BIRMINGHAM, ALA.
MANUFACTURERS AND BUILDERS OF BOILERS, TANKS, STAND PIPES AND BLAST FURNACES,
AND WORKERS-SHEET IRON AND STEEL. ESTIMATES FURNISHED ON STRUCTURAL WORK.

SMITH-COURTNEY CO.,
Richmond, Va.

Southern Agents for the

Improved Bates Corliss Engine

From 50 to 1000 Horse-power.

THE ENGINE for Cotton Mills and Large Factories.

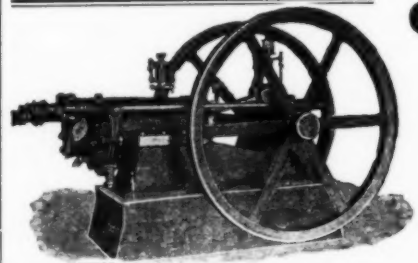
Also full line of Engines, Boilers, Iron and Woodworking Machinery and Pumps. Largest stock of Railroad, Mine and Mill Supplies in the South.

ENGINES AND BOILERS.

Tanks, Stacks, Stand Pipes and Sheet-Iron Work; Shafting, Pulleys, Gearing, Boxes, Hangers, etc. Mill Castings.

Cast every day; work 150 hands.

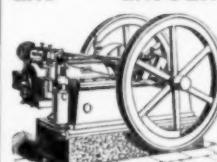
LOMBARD IRON WORKS & SUPPLY CO.
AUGUSTA, GEORGIA.



The **MIAMI**, Uses any kind of Gas or Gasoline.
Send for Circular. Correspondence solicited.

THE MIDDLETOWN MACHINE CO., Middletown, Ohio, U. S. A.

GAS AND GASOLINE ENGINES



Using Natural Gas, Coal Gas, Producer Gas and Gasoline direct from the tank. 11 to 40 H. P. Interesting Catalogue.

THE SPRINGFIELD GAS ENGINE CO.
10 W. Washington St.
SPRINGFIELD, Ohio.

COAL AND ORE BUCKETS



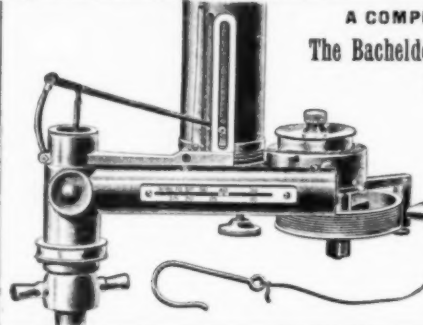
CATALOGUE?

SELF-DUMPING AND SELF-RIGHTING
Side, End and Bottom Dumping Cars. Steel Rails, Switches and Curves. Iron Wheelbarrows, Hoisting Blocks, Etc.

G. L. Stuebner Iron Works
Long Island City, N. Y.

A COMPLETE OUTFIT FOR INDICATING.

The Bachelder Adjustable Spring Indicator and Ideal Reducing Wheel.



No change of spring. Direct connection from Indicator to Cross-Head. Complete, Compact and Reliable. Always ready for use at any speed or pressure. This instrument received the Highest Award at the World's Columbian Exposition, Chicago, for Convenience, Mechanical Construction and Accuracy under all pressure.

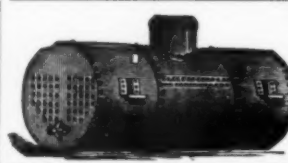
Steam Specialties and Supplies.
Write for Descriptive Catalogue.

THOMPSON & BUSHNELL,
120 & 122 Liberty St. NEW YORK.

BOILERS

With Rivet Holes Drilled after Plates are Bent and in Position, Tanks and Sheet Iron Works Engines, Cotton Gins and Presses. Machinery for Fertilizer Works and Phosphate Washers, Asbestos Magnesia Pipe Covering and Magnesia Cement Felting for Boilers, Domes, Steam Piping, etc.

VALK & MURDOCH IRON WORKS, Charleston, S. C.



The **Tudor Boiler Manufacturing Co.**
Steam Boiler and Tank Makers

Office, 246 E. Pearl St. (opp. Pittsburg. Cin. & St. L. R.) Cincinnati, O.
SECOND-HAND BOILERS ALWAYS ON HAND.

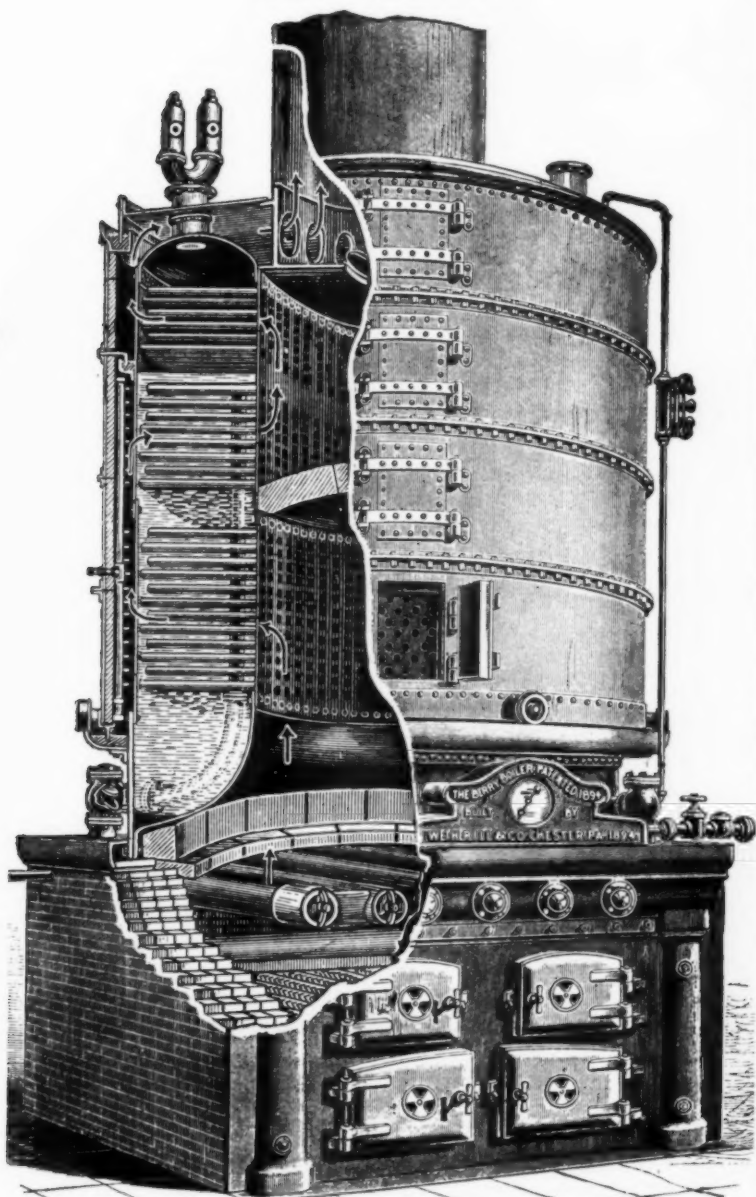
IDEAL and SLIDE VALVE ENGINES.

STEAM SUPPLIES and BOILERS.

WALLACE STEBBINS, 111 East German Street, BALTIMORE, MD.

Berry Safety Boiler

Patents 519,015 - 542,674.



Economizes space, fuel, maintenance and first cost to a greater degree than any other boiler.

COMBINES SIMPLICITY and DURABILITY

Horse-Power Units of 250, 200, 150, 100 and 50.

MANUFACTURED BY

ROBT. WETHERILL & CO., Chester, Pa.
CORLISS ENGINE BUILDERS.

BRANDEN VALVE

RUBBER,
with Wire
Coil Insertion.

One Valve will Last Longer than
Three of Any Other Make.



Patent Gage Testers,
Pressure Recorders,
Revolution Counters,
Feed Water Regulators,
Pop Safety Valves,
Water Relief Valves,
Original Single Bell Chime
Whistles,

Improved Steam Gages,
Steam Engine Indicators,
Branden Pump Valves,
Sight Feed Lubricators,
Recording Gages,
Ammonia and Gas Indicators,
Ammonia Gages,
Vacuum Gages.

CROSBY STEAM GAGE & VALVE CO.

Main Office and Works: **BOSTON, MASS.**

Stores: **BOSTON, NEW YORK, CHICAGO, LONDON, ENGLAND.**

The National Feed Water Heater

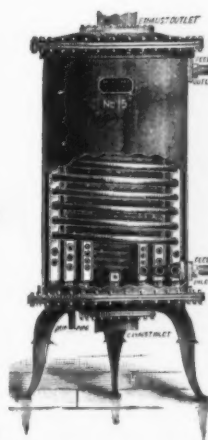
Delivers Water to the Boiler at 212° F.

800,000 H. P. in Daily Use

- No Inside Joints to Leak.
- No Straight Tubes to Leak.
- No Back Pressure is Possible.
- No Contact of Water with Shell or Iron.
- No Chance for Grease in Boiler.

Economy of

Coal, Space and Price.



WE ALSO MAKE

COILS AND BENDS

OF

Iron, Brass and Copper

PIPE.

ADDRESS

THE NATIONAL PIPE BENDING CO.

97 Lloyd Street, NEW HAVEN, CONN.

BOSTON MASS & OLIVER ST - CHICAGO, ILL. 310 MASONIC TEMPLE - CINCINNATI O. 306 N. W. BLDG. - PITTSBURGH PA. CARNEGIE BLDG.

BABCOCK & WILCOX BOILERS

THE BABCOCK

29 CORTLANDT ST.

NEW YORK.

& WILCOX CO.

SEND FOR BOOK ON STEAM.

NEW ORLEANS, LA. 339 CRUISELET ST. - SAN FRANCISCO, CAL. 32 FIRST ST. - PALM BEACH, FLA. 185 EQUITABLE BLDG.

AWARDED THE GRAND PRIZE AT THE LATE PARIS EXPOSITION.

WILKINSON STOKER,

The Great Money and Labor Saver. WILKINSON MFG. CO., 678 Bourse Bldg. Phila. or Bridgeport, Pa.



Nonpareil Anti-Friction Metal.

Best Anti-Friction Metal for all machinery bearings.
For high speed and heavy crushing weight
it has no equal.

THEO. HIERTZ & SON, Sole Manufacturers,
30th St. and Park Avenue, ST. LOUIS, MO.

Manufacturers all grades Babbitt Metals Solder, Bar Tin, Bar Lead, Lead Car Seals, Pig Tin, Pig Lead, Antimony, Copper, Spelter, etc.

The American Fuel Economizer

No large steam user can afford to run without an Economizer.
The "American" is the best Economizer in the world.

for Utilizing Waste Heat from Steam Boilers.

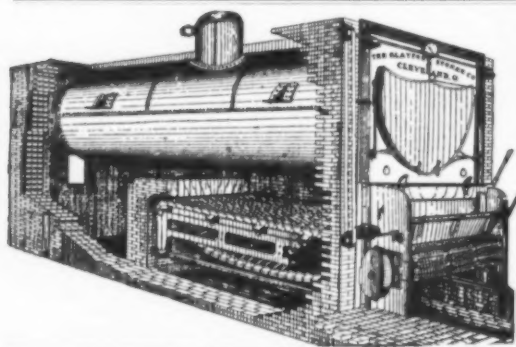
BURPEE'S PATENTS.

It will increase the efficiency of the boilers by preventing the formation of scale.

BROOMELL, SCHMIDT & CO., Limited, York, Pa.

PHILADELPHIA OFFICE, Room No. 213, 421 Chestnut Street, in charge of GEO. H. BURPEE, M. E.

SPECIAL NOTICE.—We have no agents who are authorized to quote prices. Please communicate with us direct. We are always glad to send expert engineers to look over the ground and submit estimates. It requires an expert knowledge of the economizer business to properly determine what is required.

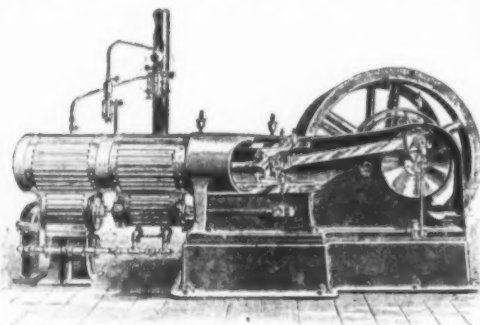


The Playford Mechanical Stoker

GUARANTEED TO
Abolish smoke, to increase
boiler capacity and to save
fuel.

For information, address
The Playford Stoker Co.
No. 161 Case Library Bldg.,
CLEVELAND, O.

Automatic Engines,



Horizontal and
Vertical,
Single, Compound
and Triple Expansion.

Side Crank and
Center Crank.

"Rites" Governor System
used exclusively.

CHAMBERSBURG ENGINEERING CO.

Main Office and Works: Chambersburg, Pa., U. S. A.

PITTSBURG AGENTS: Manning, Maxwell & Moore, Park Building.

NEW YORK AGENTS: J. D. Miller & Co., 39 Cortlandt St., New York City.

SUPERIOR COKE AND COAL

The Standard Coal Co., Brookwood, Ala.,

Produces the Best Foundry Coke in the
South, and the Highest Grade Washed
Blacksmith Coal. Our celebrated "Mill-
dale Seam" of Coal is superior for steam
purposes. This Coal is used exclusively
by the Government on its war vessels
Pensacola and Mobile.

FOUNDRY COKE AND BLACKSMITH COAL OUR SPECIALTIES.

Correspondence from foundries, factories and users of steam
coal invited.

Our Coast Agents, MOBILE COAL CO., A. C. Danner, Presdt., MOBILE, ALA.

Priestman Oil Engine Burns OIL, Not GASOLINE.

Safety, High Efficiency,
Small Fuel Consumption,
No Engineer,
No Steam Boiler,
No Ashes.



Can be used for any purpose.

SEND FOR CIRCULAR.

PRIESTMAN & CO. Inc.
Bourse Building,
PHILADELPHIA, PA.



Sturtevant Steam Traps.

TRY THEM—
You will like them.
Send for prices.

B. F. STURTEVANT CO.
Boston, Mass.

SIMPLEST AND BEST!

The "Correct" Steam Flue Cleaner



Perfectly Automatic and Safe. Steam Passes through Head only. Full
Force of Steam Pressure Utilized at the end of Flue. Will clean 18 foot flues
perfectly. Economy in Steam. Send for Catalogue with full description.

VIADUCT BRASS WORKS, 32 Centre Street, CLEVELAND, O.

CASTNER, CURRAN & BULLITT,

General Agents for the

Celebrated POCAHONTAS - COAL. Smokeless Semi-Bituminous

MAIN OFFICE:

326 Chestnut St., - PHILADELPHIA, PA.

BRANCH OFFICES:

1 Broadway, New York.

75 Kilby Street, Boston, Mass.

35 Main Street, Norfolk, Va.

Neave Building, Cincinnati, O.

Terry Building, Roanoke, Va.

Old Colony Building, Chicago, Ills.

Board of Trade Building, Columbus, O.

4 Fenchurch Avenue, London, England.

Coal Efficiency.

Having been subjected to the most severe tests and being in constant use by the
largest consumers of coal in this and other countries, our product amply sustains
all of our claims. Its freedom from clinker, slate, etc. insures the least possible
injury to grate bars.

Our Illustrated Pamphlet will prove interesting.

DAVIS COAL AND COKE CO., Baltimore, Philadelphia, New York, Boston.

If you wish to keep posted on the prog-
ress of the South, read the Manufacturers'
Record. Price \$4.00 a year.

Birmingham Boiler Works

Builders of Stand Pipes, Tanks, Stacks,
Ore, Coal and Coke, Buggies, Lories, Lum-
ber Trucks, Tram Cars. A large stock of
new and second-hand Boilers, cheap.

WM. CRELLIN, Proprietor,
Ave. A, Powel ave. and 24th st., Birmingham, Ala.

**BALL AUTOMATIC
CUT OFF ENGINE
MADE ONLY
BY
THE BALL ENGINE CO
ERIE PA.**

Wire Ropes

For Tramways, Shafts, Slopes and Planes,
Quarries, Elevators, Ferries . . .

OF IRON AND STEEL.



Steel Cables for Street Railways.
Galvanized Iron and Steel Ropes for Derricks and Dredges.

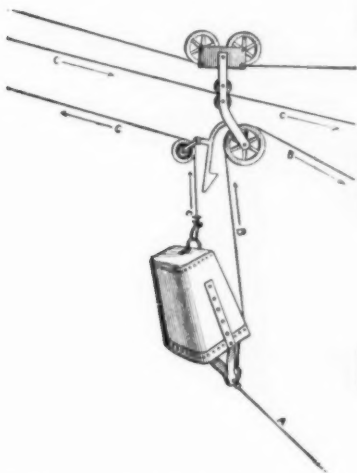
THE HAZARD MFG. COMPANY,

General Office and Works,

WILKESBARRE, PA.

New York Office and Warehouse,

87 LIBERTY ST.



Carriage and Bucket of the
HALL
PATENT

CABLE HOIST CONVEYOR

FOR

Excavating Canals and Trenches.

Used in excavating the Suwanee Canal, Georgia. Only system with a bucket that is absolutely self filling. Also Adapted to the construction of levees and embankments.

The Trenton Iron Co., TRENTON, N. J.

Manufacturers.

Also, Wire Rope Tramways, Surface and Underground Haulage Plants, etc. Wire Rope of all kinds for regular and special applications.

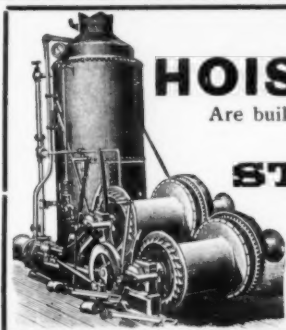
ILLUSTRATED PAMPHLET ON APPLICATION.

NEW YORK OFFICE—Cooper, Hewitt & Co., 17 Burling Slip.

CHICAGO OFFICE—1114 Monadnock Building.

W. H. EMANUEL, Agent, Denver, Col.

NEWTON M. BELL, Agent, San Francisco.



LIDGERWOOD HOISTING ENGINES

Are built to Gauge on the Duplicate Part System.

QUICK DELIVERY ASSURED.

STANDARD FOR QUALITY AND DUTY.

FOR BUILDING PURPOSES, PILE DRIVING, EXCAVATING, Etc.

LIDGERWOOD MFG. CO.

96 Liberty Street, NEW YORK.

Chicago.
Portland, Ore.

Cleveland.
Boston

Philadelphia.
New Orleans

THE BROWN HOISTING AND CONVEYING MACHINE CO. CLEVELAND, O.

MACHINERY FOR HANDLING
COAL AND ORE

CRANES

NEW YORK.
HAYMEYER BLDG.
PITTSBURG.
CARNEGIE BLDG.
CHICAGO.
MARQUETTE BLDG.

Contractors' Plant Mfg. Co. Ltd.

MANUFACTURERS OF

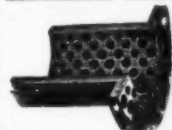
STEAM, HORSE and HAND POWER

Hoisting Machines.

DERRICK IRON and CONTRACTORS' SUPPLIES.

Manufacturers of Wire Rope.
Mention this journal.

129 Erie Street, Buffalo, N. Y.



OILLESS BEARINGS.

Metallized Loose Pulley
Bushes require no oil or
other lubricant, either at
the start or occasionally
afterwards. Will run per-
fectly dry for years.

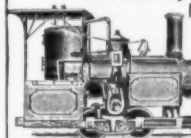
North American Metalline Co.
West Ave. cor. W. 3d St.
Long Island City, N. Y.

Send for Loose
Pulley Circular No. 6.



THE JOHN F. BYERS MACH. CO.

RAVENNA, OHIO



GEARED
OF LOCOMOTIVES,
HOISTING ENGINES,
TRAVELING
DERRICK CARS,
BUILDERS ELEVATORS

DERRICK IRONS, HAND POWERS, BLOCKS,
SHEAVES, & CONTRACTORS SUPPLIES.

H. C. LARRABEE.

JNO. C. MURPHY

CAROLINE IRON WORKS,

Corner Caroline and Lancaster Streets,

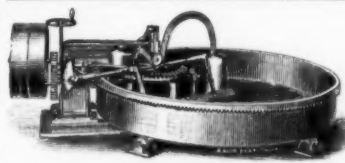
BALTIMORE, MD.

PLASTER BREAKERS

Write
for
Prices.

SMELTING POTS

For Shot and
Sheet Lead Works.



Dempwolf MIXING MACHINE

FOR FERTILIZER MIXING,
Acidulating and other purposes where first-
class mixing is required.
Capacity from 20 to 350 tons per day.

C. H. DEMPWOLF & CO., YORK, PA

THE BAILEY-LEBBY CO. Fertilizer and Phosphate Machinery

A SPECIALTY.

Complete Steam
and Automatic
Sprinkler Plants
For Cotton Mills.

Railroad and Mill Supplies, Engines, Boilers, Saw, Corn and Cane Mills.
Rubber and Leather Belting, Hose, Packings, Pipe Fittings and Brass
Goods, Wood Pulleys, Shafting and Hangers. A full stock of Plumbing
Goods always on hand. Largest stock of Supplies South. Lowest prices.
Prompt shipments. Plans, specifications and large illustrated catalogue furnished upon application.
Try the B.-L. Co. Anti-Friction Babbitt Metal, the BEST for HIGH-SPEED machinery.

CHARLESTON, S. C.

PHOSPHATE MACHINERY & SUPPLIES.

Engines, Boilers, Saw Mills.

Shafting, Hangers, Wood Split Pulleys, Steam Pumps, Centrifugal Pumps, Steel Rails, Spikes
and Fastenings, a Full Line of Railroad Supplies, and a Full Line of Bar Iron,
Iron Pipe, Valves, Fittings, Rubber and Leather Belts.

Agents for CUMMER'S DRYER.

Write for our large Illustrated Catalogue. The Cameron & Barkley Co., Charleston, S. C.

Dauids' Patent

For Bones, Phosphates, Tankware Ores, Clay,
Fish, Scrap, Salt Cake, etc. Fertilizer
Machinery, Mixers, Rolls, Breakers, etc.,
etc. Marine Railways, Clay Temperers.

Send for Catalogue.

Disintegrating Mill.

JAMES MURRAY & SON, 102 TO 104 YORK ST., BALTIMORE, MD.

LEAD PIPE OR SHEET LEAD

For Sulphuric Acid Chambers

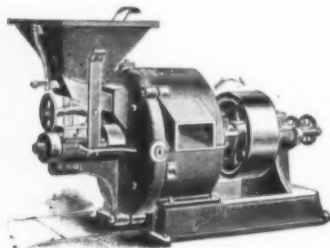
Send your orders to The JAMES ROBERTSON MANUFACTURING CO., Baltimore, Md.

The Best Crushing, Grinding and Pulverizing Machinery at the Lowest Prices.

Also DRYERS and General Mill Furnishings.

CORRESPONDENCE SOLICITED.

J. R. ALSING COMPANY, 60 and 62 New Street, NEW YORK.



ROCK

CRUSHERS,

FRENCH BUHR & ESOPUS STONES

EMERY

Send for Circular.

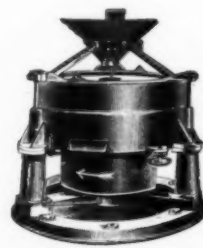
MILLS

AND

MILLSTONES.

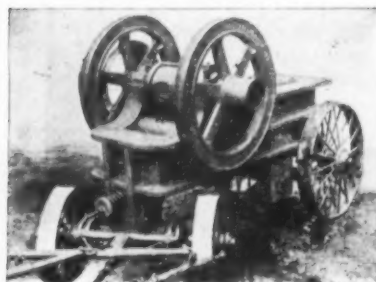
STURTEVANT MILL CO.,

BOSTON, MASS.



KEYSTONE CRUSHER & ROLLER CO.,

Pittsburgh, Pa.

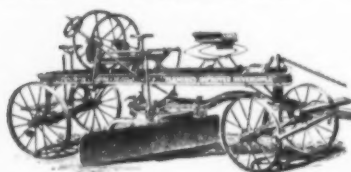


Keystone Rock Crusher,
Reversible Road Rollers,
Spreading Dump Wagon,
Reversible Road Machine,
Engines, Plows, Scrapers.

And other goods for earth handling.
Everything guaranteed.

Send for special folders or catalogues.

The strongest and most powerful Crusher built—lightest running, largest capacity, least wear, no breakage possible. Conveniences for adjustment beyond all others. Equally well adapted to the hardest known rock, or soft sandstone.



The KEYSTONE SPREADING DUMP WAGON is the only practical Dump Wagon that will spread at any desired thickness.

FLEMING REVERSIBLE.—A great success. The popular favorite. Last year's sales in excess of any other. Best in every respect.

Correspondence will always receive prompt attention.



The KEYSTONE REVERSIBLE ROLLER is the only Horse Roller that will build an honest road, or is allowed where Steam Rollers are specified. Sizes from 4 to 10 tons. Readily reversed. Roller and Ball Bearings. Perfect Brake.

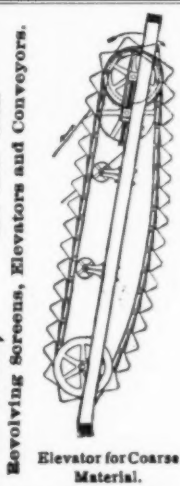


American
Diamond
Rock Drill Co.

Diamond Pointed Core Drills,
120 LIBERTY ST., NEW YORK.
P. O. BOX 1442.

McLANAHAN & STONE,
Engineers & Manufacturers,
Sayre, Tenn., Hellsburg, Pa.

IMPROVED WASHERS
For Phosphate, Iron, Manganese
and other Ores.

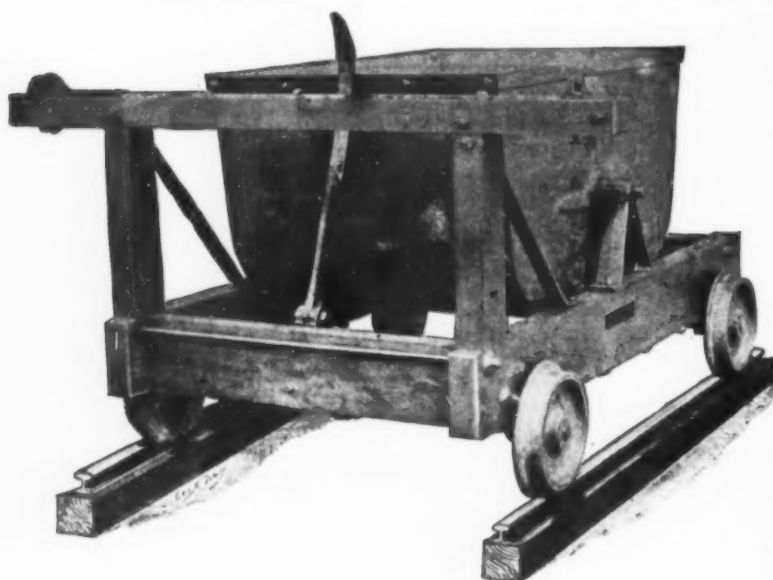


Elevator for Coarse
Material.

STANDARD END DUMP MIXER CAR.

For Carrying Off and Discharging the Product
from a Mixer, or for Any Purpose Where Dump
Cars are used.

Hand or Automatic Operation.



END DUMP MIXER CAR

MANUFACTURED BY

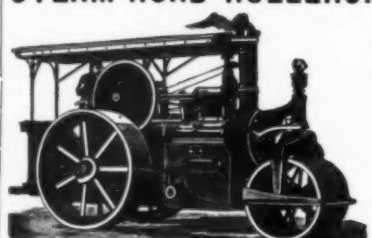
WALKER & ELLIOTT,

Manufacturers of

FERTILIZER AND PHOSPHATE MILL MACHINERY,
CRUSHING AND GRINDING MACHINERY,

WILMINGTON, DEL.

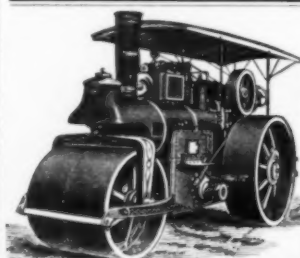
STEAM ROAD ROLLERS.



THE O. S. KELLY CO.
SPRINGFIELD, O.



CARBON
Black Diamonds,
FOR
DIAMOND DRILLS.
THE S. DESSAU CO.
37 & 39
Maiden Lane
N. Y.



"RUSSELL" STEAM ROAD ROLLERS.

BUILT IN ALL SIZES.

FOR CONTRACTORS, CORPORATIONS AND MUNICIPALITIES.

RUSSELL & CO., Massillon, Ohio.

JULIAN SCHOLL & CO., Agents, 126 LIBERTY STREET
NEW YORK, N. Y.

EMPIRE ROLLER "SAINT LOUIS."

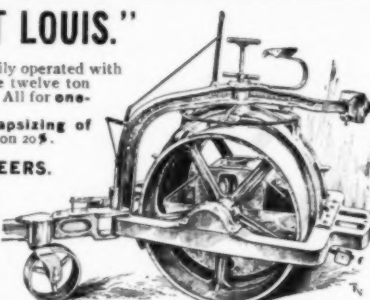
A six and half ton roller loaded to (8) tons, easily operated with four horses, producing 280 lbs. pressure while twelve ton Steam Rollers have only 272 lbs. per lineal inch. All for one-sixth their cost. Weight of carriage below shaft prevents capsizing of Roller, equalizing the load, reducing the friction 20%.

RESULTS WILL INTEREST ENGINEERS.

SUITS are now pending against F. C. Austin Mfg. Co., and the Western Wheel Scraper Co., for infringement on our Patented Roller.

Pope Reversible Street Roller Co.

No. 5 Laclede Bldg., Saint Louis, Mo., U. S. A.



PERFORATED SHEET METALS

For All Manufacturing Purposes.

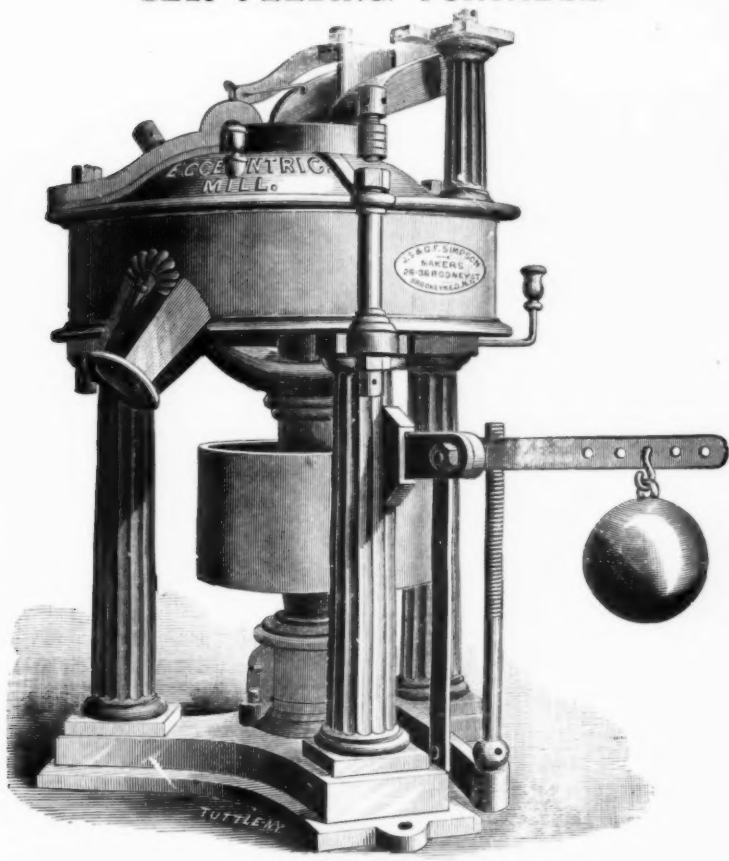
MUNDT & SONS,

88 and 90 Walker Street,

NEW YORK.

WILL GRIND ANYTHING.

NEVER become heated at any rate of speed. Require LITTLE POWER to drive them. ANY BOY can ATTEND to them. WEAR and TEAR LESS than any other mill. MORE ECONOMICAL than any mill for same amount of work. SELF-FEEDING. PORTABLE.



No. 5 MILL.

BOGARDUS UNIVERSAL ECCENTRIC MILLS—AN ENTIRELY NEW PRINCIPAL.

Let us send Descriptive Books and quote prices.

J. S. & G. F. SIMPSON, BROOKLYN, N. Y.
26-36 RODNEY STREET.

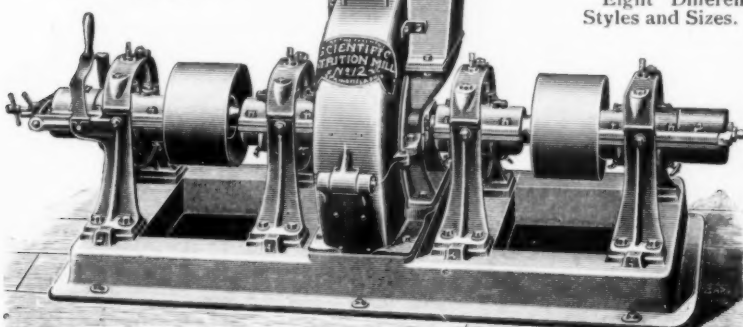
THE SCIENTIFIC ATTRITION MILL.

THE BEST ON EARTH

FOR

Millers, Elevator Men
AND OTHERS.

Grinds Grains of All Kinds,
Cuts Hay, Etc.



THE FOOS MFG. CO., Springfield, O.

Ball Bearings for
Shaft. Quick Re-
lease for Discs.
Positive Force
Feed for Grain.
An Up-to-Date
Machine.
Adjustable Shaft
and Base. Discs
easily kept in tram.
Eight Different
Styles and Sizes.

**The Wing Dryer
and Calciner**

Possesses Special Regulating Devices.
Economically Handles Raw and Waste Products.

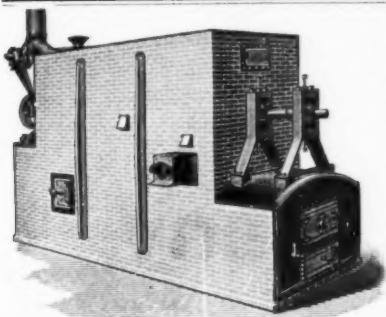
SEND FOR CATALOGUE.

Manufactured by **R. DUNBAR & SON,**

Chemical Engineers,

BUFFALO, N. Y.

Office and Works—Perry and Mississippi Sts.



Think of it.

We sell 10,000 XX-6¾ size, good quality envelopes printed for \$10. Write for samples. **ATLANTA ENVELOPE CO., Atlanta, Ga.**

WE HAVE SOLD WITHIN 90 DAYS

**SIXTY
GRIFFIN MILLS**

to the largest Cement Manufacturers,
among them being the

American Cement Co.
Alpha Portland Cement Co.
Lehigh Portland Cement Co.
Bonneville Cement Co.

Vulcanite Portland Cement Co.
Peerless Portland Cement Co.
Glens Falls Portland Cement Co.
Castalia Portland Cement Co.

because they believed that The Griffin Mill beyond doubt does the best possible work at the smallest possible expense.

We will gladly send you full information, and very many American and Foreign references regarding it if you desire them.

BRADLEY PULVERIZER CO.,

92 STATE STREET, BOSTON, MASS., U. S. A.

SULLIVAN DIAMOND**Prospecting Core Drills,**

FOR THE RAPID AND ACCURATE TESTING OF
MINERAL DEPOSITS.

All Sizes of Drills in Stock

OPERATED BY

HAND, HORSE-POWER, STEAM,
COMPRESSED AIR OR
ELECTRICITY.



"N" DRILL.

Sullivan Rock Drills,

FOR

Mining, Quarrying, Tunneling.

CHANNELERS,
CADDERS,
QUARRY BARS.

Contractors for Prospecting with
DIAMOND CORE DRILLS.



"M" DRILL.

SULLIVAN MACHINERY CO.,

54 to 60 N. Clinton Street, CHICAGO, ILL.

Eastern Office and Works, Claremont, N. H.

Pittsburg Office, Schmidt Bldg., 339 Fifth Ave.

Muirhead Machine Works,

Drilling and Fishing Tools.

Oil, Gas and Artesian Well Supplies,

Muirhead's Patent Drive Pipe.

Sullivan Diamond Core Drills for Sale.

Diamond Setting a Specialty.

Boilers, Pumps and Engines.

Correspondence solicited.

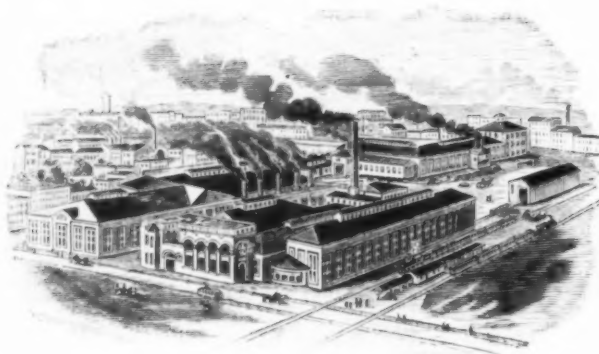
Mention this paper

PITTSTON, PA.

P. H. GLATFELTER, President.

W. L. GLATFELTER, Secretary and Treasurer.

THOS. SHIPLEY, General Manager.

YORK MANUFACTURING COMPANY,

MANUFACTURERS OF

Ice Making and Refrigerating Machinery

FOR ALL PURPOSES.

We make Ice Machines from 1 ton up.

Refrigerating Machines from 2 tons up.

Full information concerning our latest improved machinery furnished on application.



We also make

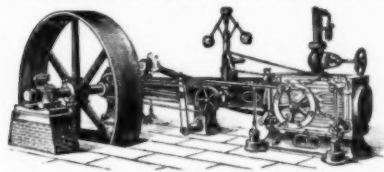
Steam Engines, Boilers and
Complete Power Plants,
Castings, Stacks, Tanks, Stand Pipes
and General Wrought Iron Work.

Write for Prices. **York Manufacturing Company,****YORK, PA., U. S. A.**

Ice Making Machinery.

DOUBLE AND SINGLE ACTING. AMMONIA VALVES AND FITTINGS.
JOHN FEATHERSTON'S SONS, 354-358 N. Halsted St., Chicago, Ills.

NEWBURGH ICE MACHINE & ENGINE CO.



Successors to
Whitehill Engine & Pictet Ice Machine Co.
Office and Works, NEWBURGH, N. Y.
New York Office, 44 Taylor Building,
39-41 Cortlandt Street.
Whitehill Corliss Engines,
SIMPLE, COMPOUND AND CONDENSING.
Ice and Refrigerating Machinery. Iron and Brass Castings

REMINGTON MACHINE CO. WILMINGTON, DEL., U. S. A.

New York Office, 136 Liberty St.

BUILDERS OF

Refrigerating & Ice-Making MACHINERY

From one-half to fifty tons capacity.

We Make a Specialty of
SMALL MACHINES

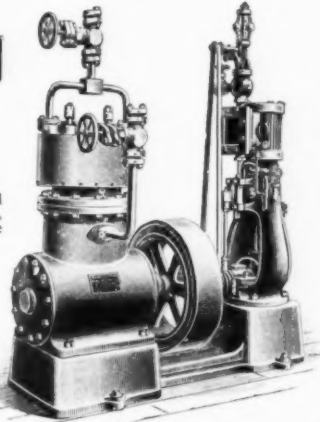
and have the most successful system of Mechanical Refrigeration for Dairies, Packing Houses, Hotels, Market Houses, Steamships, and wherever a moderate amount of refrigeration is required.

The Remington Vertical Ammonia COMPRESSORS

are built either with engine direct connected on same base or for belt power.

They are the SIMPLEST, MOST COMPACT, and EFFICIENT MACHINES yet designed for this purpose.

Skilled help not required for their operation.
BAKER & HAMILTON, San Francisco, Cal.,
Sole Pacific Coast Agents.



The Fred. W. Wolf Company,

139-143 Rees St., Foot of Dayton St.,
CHICAGO, U. S. A.

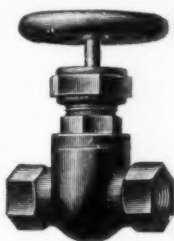
Ammonia Fittings and Refrigerating Machine Supplies.

Have you seen our No. 5 Catalogue of Fittings and Supplies?



Start in the New Year with our superior qualities of Fittings . . .
You will never regret it.

Eastern Branch—Leonard C. Schmitt,
209 E. 94th Street, New York.
Southeastern Branch—E. E. Eagan,
819 Equitable Building, Atlanta, Ga.
Southwestern Branch—E. P. Maddox,
Fort Worth, Texas.
Western Branch—Clot & Mee,
167 Fremont Street, San Francisco, Cal.



GALVANIZED STEEL - - - ICE CANS

OVER 150,000

OF OUR

Cans in Use and Distributed in 33 States and Foreign Countries,

AS FOLLOWS

Alabama, Arizona, Colorado, Connecticut, District of Columbia, Florida, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, New Mexico, New York, Nebraska, North Carolina, Ohio, Oklahoma Ter., Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin, South America, British Columbia, West Indies, Honolulu.

ESTABLISHED 1861.
INCORPORATED 1890.



Manufacturers of

TANKS,
RE-BOILERS,
FILTERS,
SKIMMERS,
DISTRIBUTING
TROUGH, etc.

Either of Black Steel or Galvanized Iron,

FOR
ICE MAKING

AND
REFRIGERATING PLANTS

Capacity 300 Per Day.

CHRIS. KIECHLER, Sr.,
President.

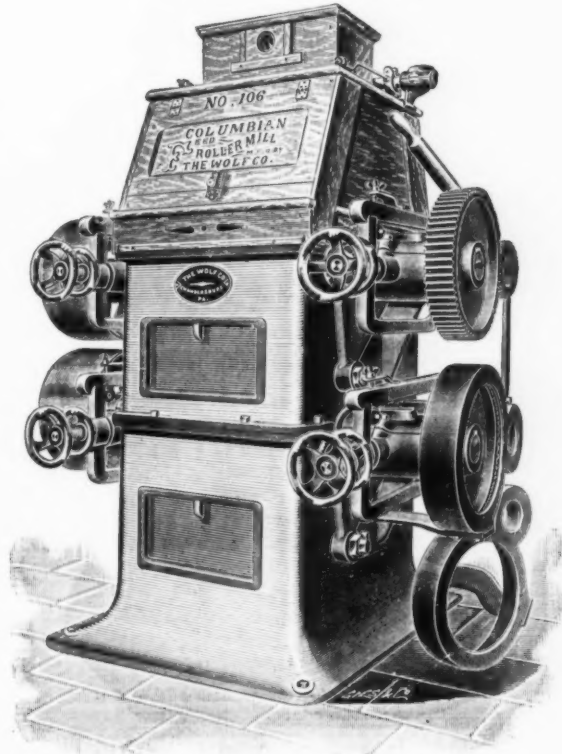
THE KIECHLER MANUFACTURING COMPANY,
Power Sheet Metal Works,

WRITE FOR PRICES.

CINCINNATI, OHIO, U. S. A.

"Columbia" The Gem of the Ocean."

Our "Columbian" Feed Roller Mill is also
a "Gem" in its line.



Columbian Two Pair High Roller Feed Mill.

ROLLER MILLS, all sizes, ready to be shipped; COLUMBIAN FEED MILLS, two pair high, three pair high, nothing near so good made by any other manufacturer—all sizes in stock. WOLF FLOUR PACKERS, latest and best; WOLF FLOUR DRESSERS; WOLF PURIFIERS; WOLF DUST COLLECTORS; WOLF-KEISER TURBINES.
Try us once for anything you need, and you'll be glad for all time to be our customers.

THE WOLF CO., -:- Chambersburg, Pa.

Don't Make a Mistake.

A comparison of merits of different makes of Elevator Buckets will always result in a decision that the "SALEM" has no equal for long and satisfactory service. Send for price list.



The W. J. CLARK CO., Salem, Ohio, Sole Manufacturers.

Ice-Making and Refrigerating Machinery. Eclipse Corliss Engines.

FRICK COMPANY,

Engineers, Builders, WAYNESBORO, PA.

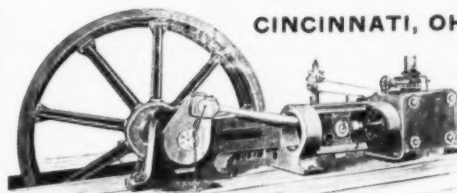
NEW YORK OFFICE, Taylor Building, 39-41 CORTLANDT ST.

40 to 1000 Horse-Power Made—Condensing, Non-Condensing and Compound.
Send for Ice Machine Circular. Send for Corliss Circular.

SPECIAL HIGH-SPEED AUTOMATIC ENGINES, STEAM BOILERS,
Send for our General Catalogue. TRACTION and PORTABLE ENGINES, SAW MILLS.

THE LANE & BODLEY COMPANY

CINCINNATI, OHIO.



ENGINES

ALL SIZES.

Simple
and
Compound.

COLUMBIAN CORLISS ENGINE.

Slide Valve Engines, Shafting, Hangers, Pulleys, Freight Elevators, Saw Mills, Etc.

INVEST IN

Charleston,

SOUTH CAROLINA.

This is a good time to start.

Room and work for

\$100,000,000

Jetties completed by U. S. Government give channel 26 feet deep to the ocean. Harbor large and deep enough to float the combined navies of the world.

PERFECT CLIMATE.
GOOD HEALTH.
PURE ARTESIAN WATER SUPPLY.
CHEAP LIVING.
CHEAP ELECTRIC POWER.
CHEAP TRANSPORTATION.
by rail and water.

Charleston has in its vicinity the most successful market farms in the United States, annual shipments from which amount to more than \$2,500,000.

New manufacturing enterprises exempt from municipal taxation for five years.

NEARLY \$10,000,000

now invested in manufactures as follows:

Class.	No.	Hands employed	Capital invested	Annual product.
Bag factories.....	1	55	150,000	475,000
Barrel factories.....	1	325	300,000	350,000
Basket and willow.....	1	123	225,000	150,000
Ware factories.....	2	13	10,000	25,000
Basket & veneer wks.....	2	250	75,000	125,000
Breweries.....	1	160	167,000	300,000
Broom factories.....	1	10	2,040	6,000
Candy factories.....	10	60	100,000	375,000
Cigar and cigar wks.....	3	15	50,000	100,000
Cigar factories.....	3	15	15,000	35,000
Cotton factories.....	1	64	60,000	252,000
Cotton & wool pick'g.....	1	15	10,000	70,000
Cotton ties, etc.....	4	20	10,000	35,000
Envelope & box fact'y.....	1	63	30,000	75,000
Fertilizer works.....	12	1,400	5,325,000	4,265,000
Four and grist mills.....	8	275	150,000	700,000
Ice factories.....	3	200	250,000	300,000
Job printing and.....	2	25	75,000	100,000
Knitting factories.....	8	180	325,000	450,000
Lead factories.....	1	90	24,000	40,000
Marble & granite wks.....	1	10	40,000	130,000
Mattress factories.....	5	60	40,000	75,000
Men's clothing.....	2	35	27,000	70,000
Oppropriary estab'ls.....	11	90	60,000	250,000
Rice mills.....	35	170	75,000	350,000
Saddlery & harness.....	2	40	40,000	1,000,000
Sail & awning fact'ies.....	9	25	30,000	70,000
Saw and lumber yard.....	5	320	350,000	850,000
Ship and boat yards.....	8	250	300,000	850,000
Shoe and leather.....	3	70	75,000	175,000
Soda and candy.....	1	45	25,000	100,000
Soda water, etc., fact'y.....	1	15	45,000	60,000
Underwear factories.....	22	150	100,000	650,000
Totals.....	190	5,617	\$9,440,000	\$14,418,000

For any information address

BUREAU OF FREIGHT
AND TRANSPORTATION,

CHARLESTON, S. C.

Don't be misled

into supposing that cast or malleable iron valve motions are good enough, just because you are told so by the manufacturers of cheap steam pumps. Henry R. Worthington used these materials until last year, but finding that the present day requirements made the use of the best material necessary, began fitting all Worthington Pumps with forged steel valve motions and links. While they cost more, the expense is worth the difference. That is the opinion of engineers of experience throughout the world.

HENRY R. WORTHINGTON, New York.

Boston. Chicago. St. Louis. Pittsburg. Philadelphia. Cleveland. Detroit. Atlanta. New Orleans.



H. WM. DOPP & SON,

MANUFACTURERS OF

Soap Makers' and Butchers' Machinery,

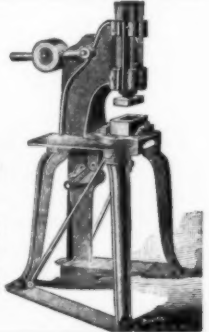
462 ELLICOTT STREET, BUFFALO, N. Y., U. S. A.

Swing Foot Lever Soap Presses, Nos. 1 and 2. Combination Foot and Steam Power Soap Presses. Improved Soap Remelting Cutchers, either with or without Eight Horse-power Engine attached. Seamless Steam Jacket Kettles. Steamed Jacketed Toilet Soap Kettle, with Agitator (three different styles). Steam Jacketed Rendering and Refining Kettles. Steam Jacketed Kettles for Confectioners.

Illustrated and Descriptive Catalogue on application.

Improved Lard Dryer, Mixer and Cooler. Steam Jacketed Vacuum Pans. Hotel Kettles for Boiling and Steaming in Hospitals, Institutes, Barracks, Hotels, Asylums, &c., &c. Steam Jacketed Glue Pot Heaters. Iron Soap Cutting Frames, with Adjustable Wires. Soap Dies for Stamping and Moulding the Soap. Hand Stamps, Steam Traps, with Balanced Valve, &c.

Mention this advertisement.



JOHN T. BAILEY & CO.

Philadelphia, Pa.

Offices and Works—Water & Tasker Sts.

BAGS, ROPE and TWINE.

Manufacturers of

IMPORTERS OF
BURLAPS.

ROYAL BAG MF'G CO.

Charleston, S. C.

Geo. A. WAGENER, Pres't. W. B. FROST, Vice Pres't.
Geo. LUNZ, Sec'y and Treas.

FERTILIZER SACKS, KAINIT SACKS, COTTON-SEED MEAL
SACKS, FLOUR AND GRAIN SACKS, TWINE.

MANUFACTURERS OF

IMPORTERS OF

BURLAPS.



APOLLO BEST BLOOM
GALVANIZED IRON.

There are builders and builders.
Some buy cheap galvanized iron
rolled thin; and some buy Apollo.

Apollo Iron and Steel Company,
Pittsburgh, Pa.

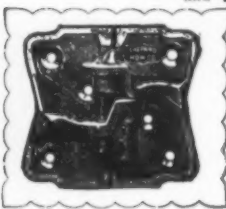
Manufacturers CABINET AND BUILDERS' HARDWARE

and Specialties in Iron.

Wrightsville Hardware Co.

WRIGHTSVILLE, PA.

SUCCESSORS TO
SHEPARD HARDWARE CO., Buffalo, N. Y.
in the following departments
of the business:



Blind Hinges, Gate Hinges, Gate Latches and Frame Pulleys



The American Balance Slide Valve

BEVEL PACKING RING
ABSOLUTELY STEAM TIGHT.

NO SPRINGS.

SELF-SUPPORTING. SELF-ADJUSTING.

15,000 Valves in use on Locomotives, Stationary
and Marine Engines.

Descriptive Catalogue Free.

AMERICAN BALANCE SLIDE VALVE CO.,
Jersey Shore, Penna.

"SAMSON" STEEL BELT HOOK.

SAMPLE SENT FREE.

For all kinds of Belts—
leather, cotton or rubber.
Will neither cut nor pull
out. FLEXIBLE, SMOOTH
and NOISELESS RUNNING.

THE BEST FASTENER
FOR OLD BELTS.

Samson Steel Belt Hook Co.,
221 Locust Street,
Philadelphia, Pa.



THE HOLLAND BOAT.

Compressed Air is the life of the Holland Submarine Torpedo Boat.
By an INGERSOLL-SERGEANT Class "E" single acting Compound Air Compressor, air
is compressed up to 2500 pounds pressure, and is used for
Emptying the Water Ballast Tanks.
Driving the Horizontal Steering Engines.
Driving the Engines controlling the Diving Gear.
Ventilating.
Respiration.
And other purposes. The details of which have startled the world.

THE Ingersoll-Sergeant Drill Co.

HAVEMEYER BUILDING, 26 CORTLANDT ST., N. Y.

VALDOSTA FOUNDRY & MACHINE CO., VALDOSTA, GA.

Manufacturers of Boilers, Saw Mills, &c.

We Buy, Sell and Trade New and Second-hand Machinery.

MANUFACTURERS' RECORD.

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XXXIII. No. 15.
WEEKLY.

BALTIMORE, MAY 6, 1898.

\$4.00 A YEAR.
SINGLE COPIES, 10 CENTS

Manufacturers' Record.

PUBLISHED EVERY FRIDAY BY THE
Manufacturers' Record Publishing Co.

RICHARD H. EDMONDS, President.

OFFICE: MANUFACTURERS' RECORD BUILDING,
BALTIMORE.

RICHARD H. EDMONDS,
Editor and General Manager.

THOMAS P. GRASTY,
General Staff Correspondent.

NEW ENGLAND OFFICE:
Room 14, 299 Devonshire Street, Boston, Mass.
S. I. CARPENTER, Manager.

Special Traveling Representatives:
RICHARD S. EVANS,
I. S. FIELD.

SUBSCRIPTION, - - - \$4.00 a Year.
TO FOREIGN COUNTRIES, - - - \$5.60 a Year.

BALTIMORE, MAY 6, 1898.

An Object-Lesson of War.

The war spirit in this country is resulting in a number of object-lessons which should not be forgotten after the necessity for hostile movements has passed. One of these, and a most important one at that, is presented in the spontaneous promptness with which the wealthy in all parts of the country have come forward in aid of the government. The acts of men like John Jacob Astor or John Wanamaker and others, who are classed as millionaires, have been given the prominence in the public prints which they deserve.

There are, however, thousands of others who, as individuals or in corporations, have displayed a most commendable spirit in emergency. While some have undertaken to supply the necessary funds for raising forces and equipping new commands, many others have expedited the volunteering movement by removing from the minds of would-be volunteers any apprehension about the comfort of their families while they are temporarily removed from their bread-winning occupations. They have given assurance that the salaries or wages of employees entering the army will be paid in full to the families during the term of enlistment and that their places will be held open against their return. There are many thousand men who do not wait for a bounty before they enter the army, but among them may be found many who feel that as long as they have wives and children dependent upon them it is their duty to remain at home.

The liberality of employers in removing this difficulty not only strengthens the arm of the government in time of war, but should conduce to an elimination from the stock in trade of demagogues of the opportunity for stirring up strife between capital and labor. When capital offers to expend thousands of dollars in equipping a regiment, or presents for service with the navy a vessel built at great cost for individual pleasure, or shows a willingness to practically double the payroll for an indefinite period, labor ought to perceive that capitalists are human beings after all.

No Time to Falter.

Discussing the effects of the war the New York Evening Post says:

Even the coastwise traffic has been reduced to small dimensions by the high rates of marine insurance, and the railroads to the South and Southwest are reaping a harvest at advanced rates of freight. Another consequence of the war risks is that Western produce, which formerly sought its ocean outlets at New Orleans and Galveston, is now turned towards New York, Boston and Montreal, where it can find the protection of neutral flags. We trust the people of Texas will remember this against Mr. Bailey at the proper time.

The Evening Post is really giving too much prominence to the young man who has been performing for the galleries persistently of late. In doing so it has presented conditions in a light which we believe is hardly justified by facts. It seems, moreover, to express a hope which is dominant in certain narrow New York circles, whether war prevails or not. For some months they have contended that the climate and other influences were against the exportation of Western produce by way of Gulf ports, but the exportations have continued, to the contrary notwithstanding. We believe that the Evening Post's war scare will be found to be equally ineffective as a commercial campaign measure. It is natural that New York should object to the cessation of coastwise traffic, as it was largely contributory to its foreign trade. It, however, also works in another direction. For instance, the news comes from St. Louis that the interruption of steamship connections between New York and the Gulf ports and the Mexican ports along the Gulf, on account of the danger from accident or seizure, has caused orders from Mexico and the Southwestern States to be sent to St. Louis instead. This has already given a great impetus to the St. Louis boot and shoe trade, which already has tremendous dimensions, and it is not unlikely that similar results will follow in other lines of trade after which New York has been reaching. In the meantime, a moment of sane consideration will show the lack of reason for arguments against cessation in foreign trade of the Gulf ports. For instance, the Galveston News has the following words of wisdom on this point:

Be it remembered that the coastwise trade of Galveston, although quite healthy, is but a part of the shipping business of the port. It has been suspended for the reason that it is conducted exclusively upon American bottoms, and ships flying the American flag are in danger of seizure by the navy of the enemy. But all the foreign business of the port is and has been conducted exclusively upon foreign bottoms, and principally upon neutral vessels. Now that Spain and the United States are at war, Spanish ships will have to get out of the business, but the ships of other nations, and there are plenty of them, will continue trading at all American ports, as usual. Under the declaration of Paris, neutral bottoms protect the enemy's goods. It is true that Spain has not subscribed to this declaration, but it is not to be supposed that such powers as Great Britain will permit Spain or any other nation to run its commerce with America off the seas by proceeding in opposition to the

terms of the declaration. The very best reason to suppose that our foreign commerce will go on without interruption is that it is being conducted that way at present, and the ships of neutral nations are yet heading this way for cargoes.

Equally wise is the utterance of the New Orleans Times-Democrat, in referring to the withdrawal of the Lone Star Steamship Line and the temporary suspension of operation of the Mallory Line:

There was some little apprehension that the war, waging, as it was likely to do, in the Gulf of Mexico and Caribbean sea, would interfere seriously with our tropical fruit trade, as the vessels engaged in it would be in danger from Spanish cruisers. But as the Spaniards have all they can do to look after themselves, and are not disturbing our vessels in any way, this trade is going on as actively as ever.

There is, as we have noticed, some increase in freight rates to foreign ports because of war risks, and there are slightly fewer vessels en route to all American ports than is usual at this season of the year, but the presence of twenty-two vessels in port and loading here, and forty-five sailed for New Orleans and destined to arrive, we do not see much cause to be worried over the injury done our commerce by the war.

All the other facts are equally favorable. We are, for instance, doing a larger banking business than at this time last year, as evinced by the reports of the clearing-house; we are receiving more cotton, both proportionately and in the aggregate. Half of all the cotton reaching the seaboard comes to New Orleans, compared with less than a third last year, showing that the cotton is not being diverted to North Atlantic ports on the theory that they are safer than those of the Gulf. New Orleans is now receiving nearly three times as much cotton as last year. Altogether it will be seen that New Orleans is not feeling in any unfavorable way the effects of the war, nor is it likely to do so. The harmful predictions of the pessimists were based upon the experience of the civil war, to which our present war bears no resemblance whatever.

Both of these statements in the Southern papers were made before they could have seen the editorial in the Evening Post, but Bradstreet's, of New York, published on last Saturday, presents some sensible facts, which are reproduced as follows:

Perhaps the infinite power of adaptability to circumstances of the American people was never better illustrated than it has been in the week following the declaration of war with Spain. With a hesitation so slight as to amount almost to indifference the business community, relieved from the tension caused by the incubus of doubt and uncertainty which so long controlled it, has stepped confidently forward to accept the situation confronting it owing to the changed conditions inevitable upon the breaking off of friendly relations with a foreign power. So few have been the unfavorable circumstances attending the rupture, temporary as these must be at the worst, that they have hardly excited remark, while the stimulating effects have been so numerous and important as to surprise all but the most optimistic. Bradstreet's state of trade report this week will bear careful reading by every business man who is anxious to measure the actual results which have flowed from the ending of the period of inaction. The list of advances in prices of staples which presents itself this week is a notable one. The agricultural classes can hardly view with unconcern the marking up of all the products of their industry, and the manufacturing interests, while slower to feel the favoring breeze, must surely in time profit largely thereby, because the development of the foreign demand this week is merely a tardy recogni-

tion of the fact that this country today occupies an enviable position as a producer of staples which European and other consumers must have. While undoubtedly some of the advances, particularly in imported goods, are based upon fears of interruption of supplies or of higher taxes, the former of which, owing to most of our supplies coming in foreign ships, seeming quite unlikely, the fact is that history seems likely to repeat itself in witnessing a stimulated demand for all necessities and luxuries growing out of the impetus given to general business by large expenditures alike on foreign and domestic account.

We commend these quotations to the Evening Post, and suggest that that journal should not permit the personality of Mr. Bailey or commercial rivalry to lead it into prophecies which are hardly sustained by facts or by probabilities.

Corporations—An Example.

Some weeks ago the Manufacturers' Record, in pointing out some of the economic changes in business that are revolutionizing many industries, said:

The economic changes, or rather the effects of these changes, against which the thoughtless are railing are seen in every country and in every business pursuit. Consolidation, co-operation, corporation are simply the means of working out the changes. The railroad supplanted the stage driver, to the latter's loss, but shall we on that account abolish railroads? The consolidation of half a dozen badly managed small railroads into one compact organization means loss to individual officials, but it means better train service, more comfortable traveling facilities, and eventually lower cost of freight and passenger rates. Where one man suffered a hundred or a thousand have been benefited.

The point made in that editorial is very cleverly used by the Richmond Times in referring to a recent newspaper consolidation in Norfolk. The Times says:

If our esteemed Norfolk contemporary will pardon a personal allusion, we will mention its own case as an illustration in point. Thirty days ago there were three morning newspapers in the city of Norfolk, each good in itself, but each unable to sustain itself properly because of the sharp competition and because of the overplus of newspapers in that city. Each of these newspapers was conducted by a separate corporation, and the presidents of the respective corporations, being business men, recognized the fact that all three newspapers could not be maintained on a paying basis. And so it happened that the president of the Pilot Company and the president of the Virginian Company came together in conference and talked the situation over. It was pointed out, each to other, that by combining the two corporations, or, which was the same thing, the two newspapers, a twofold object could be accomplished. Business would be increased and expenses would be reduced. In other words, it was manifest that by combination the Virginian and Pilot would get the subscriptions and advertising patronage of two papers and yet have the expense of conducting only one paper. That is to say approximately so. Having arrived at that conclusion, it is not at all surprising that these two men of affairs decided to join issues and to convert two non-paying investments into one investment which promised big dividends. And so they went to work on the details, and it was only a little while before the announcement was made that the two newspapers had consolidated.

Now let us view the matter from the standpoint of the people. Before the consolidation, in order that the Norfolk public might enjoy all the good things printed both

in the *Virginian* and *Pilot*, it was necessary for the subscriber to take both papers at a cost of \$10 per annum. Under the present arrangement, however, the subscriber gets both the *Virginian* and *Pilot*, a better newspaper, we must say, than either the *Virginian* or the *Pilot* was before the union, at just half the former cost, to wit—at \$5 per annum.

As for the merchants and transportation companies and others in Norfolk, who were compelled to advertise, they now get the same results from advertising in the *Virginian* and *Pilot* at one price as they got from advertising in the *Virginian* and the *Pilot* separately at two prices.

In short, the people of Norfolk are getting a better newspaper, and the business community a better advertising medium, by reason of this consolidation, and at about half the former cost.

Can any man say that this was not a desirable combination all round—for the proprietors as well as for the public? It may be that some few people were thrown out of employment by the union, but we venture to say that within the next twelve months the *Virginian* and *Pilot* will employ more people and pay out more money for wages than the two papers employed and paid out before the consolidation.

Our esteemed contemporary is behaving itself beautifully and will be permitted to live, not by sufferance, but by the hearty good will of the Norfolk public. Indeed, the *Virginian* and *Pilot* has demonstrated beyond a peradventure that, in some cases at least, a combination is a most desirable and beneficial thing, and that the prejudice against corporations and combinations generally is utterly unreasonable and untenable.

Here is a specific case which illustrates the whole subject and which is well worth careful study by all who are disposed to decry consolidations and corporations without stopping to fully consider that these consolidations may mean great benefits to the public.

Heroes of the Hold.

In war times men are inclined to the belief that the opportunity for a display of heroism is greatest at the point of greatest danger. Commenting on a discussion of this subject, as related to a modern battleship, the *Columbus Enquirer-Sun* says:

Down in the bowels of the ship, down where the engineers and firemen have no weapons, but are busily engaged in studying the steam gauges and in feeding the ravenous grates with coal and furnishing the boilers with steam, is where the grit is most in demand. They are cut off from the excitement that stimulates heroic deeds in the men at the guns, and without an avenue of escape, without a chance of safety if the vessel is lost, they must await the outcome of the deadly struggle. Little do they know when a torpedo will ram its nose against the vessel's side, tear a great rent in the hull, and let in a flood of water that will drown them almost before they can move from their posts. The duties of the men on deck require good mettle, but the duties of the men in the hold of the battleships require the most superb heroism and courage.

This idea, which is an excellent one, may be broadened and applied to the men of the country who have not felt called upon to go to the front in arms. When volunteers are marched away with flying flags and amid enthusiastic cheers of thousands of spectators it may be very difficult at times for a man to resist the temptation to become an active combatant, but just as the battleship would be of no practical value as a ship without the coolness and pluck of the men at the engine, or the coal-heavers in the hold, so there would be little to be gained by a nation whose whole energies were occupied in destructive operations of warfare. The fighters and those who direct them have to be sustained, and that they may be properly sustained the industrial engines must be kept under proper control and the means for that purpose must be steadily maintained. There is no excitement in the perse-

verance of a merchant, a manufacturer or a farmer in the usual routine of his life while the gaze of a people is intent upon dramatic incidents upon land or sea. It may require decided courage for an investor to carry out during war plans formed in peace; it may be irksome for a man physically fitted for military duties to continue in the humdrum of daily labor, but such persons in private life who feel that their duty holds them to their positions at home are rendering just as much service to their country as the members of great armies or naval forces. There are heroes of the quarter-deck, but there are also heroes of the hold.

A Chance for Demagogues.

We observe that while a number of those terrible creatures known as millionaires and those American horrors known as corporations are promptly and systematically devoting their means and their energies to the prosecution of the war with Spain, a number of gentlemen who pose at the public's expense for personal gain are still conducting business at the old stand. They are to be found in the body which is responsible for the war, and from which very few are volunteering for active service in the field.

Upon our desk we have a large assortment of most ardent war-like speeches delivered during the past six weeks, but going over the list of the orators we find not more than three who have tendered their services to the government. On the contrary, we find that warriors of the forum are busily engaged in promoting personal interests by attempting to secure staff appointments in the army for their constituents, or in devising means to inject party contentions into the consideration of measures which must be passed for the safety of the country. In peace times such conduct comes under the head of demagoguery. But there is no time for demagoguery to advance its own interests when the people of the United States are called upon to make sacrifices of blood and treasure for carrying out its behests. We thoroughly appreciate the self-sacrifice on the part of these gentlemen if they feel that the country demands that they should stick to their congressional duties, yet at the same time we offer the suggestion that they might give the people of the country an opportunity to express themselves on that point, and we are bold enough to assert that should every man of the class mentioned resign his seat and enlist as a private in the front rank, not only will his place be readily filled, but he will obtain the undying gratitude of the nation.

Millionaires and corporations are proving that they have the good of the country at heart. Here is a chance for demagogues to show that they have been greatly misrepresented.

Wilmington to the Fore.

Under the act of the general assembly of North Carolina, the city of Wilmington has voted to exempt from taxation for a period of ten years any factories started within the city limits. This action of Wilmington is in line with a general movement in Southern States for the encouragement of new industrial enterprises. Alabama has already provided for similar exemption of cotton factories; the next legislature of Georgia will probably be called upon for legislation permitting such exemption, while the industrial

convention at Nashville seems likely to crystallize the sentiment favoring equality of taxation in Tennessee. Wilmington has acted wisely. There may be some who contend that such exemption is unjust to industries already established, but the broader view to take of the matter is that the starting of new industries under favorable auspices will have the effect of enlarging the opportunities of all.

Known by Its Fruit.

In a letter to the *Manufacturers' Record*, Mr. C. B. Orcutt, president of the Newport News Shipbuilding & Dry Dock Co., writes:

Our yard will have all the work it can attend to from this time on without question. To my mind one of the benefits accruing from the present war will be the strengthening of our navy and the improvement of our merchant marine. This seems patent to all.

It may be added, with congratulations, that the results which have been obtained already in the strengthening of the navy and improving the merchant marine from the products of the Newport News Shipbuilding & Dry Dock Co. are guarantees that that company will have all the work that it can attend to, and that it will be a potent factor for many years to come in keeping to the front the South's advantages for shipbuilding, whether the vessels are intended for commerce or for the destruction of commerce.

With its April number the *Cotton Ginners' Journal*, of Waco, Texas, began its second year. The twelve previous numbers have been marked by a steady improvement, both in the news, editorial and advertising columns. The anniversary number is typical of the publication. Among the topics discussed are "Smaller Gin Boxes," "The Round Bale," "Bonded Warehouses for Cotton," "Country Buying," "Ultra Density in Compressing," "Egyptian Cotton," "Sea Island Cotton," "The Barbarous Gin Saw," "New Inventions and Improvements," "Buyers' Views," "Reduction of Acreage" and "Ginneries of the Future"—in fact, there are subjects of interest to nearly everybody who handles cotton. The *Cotton Ginners' Journal* has successfully filled a place which required energy, enterprise and industry.

"A RAIN OF IRON"

Improvement Noted in the Trade at Birmingham.

[Special Cor. Manufacturers' Record.]

Birmingham, Ala., May 3.

There has been a rain of iron of late, some of it going to unwilling recipients, though it was tendered "without money and without price." The buyers who have been waiting to gauge "the trend of events" seem to suddenly arouse about the same time and entered the market with full ranks. The result was there was a lively time of it, and for the present the aspect of affairs has undergone a favorable change. The buying has been general, and includes the pipe trade and the manufacturers of agricultural implements. The largest order in magnitude was for 20,000 tons. There were some orders for 10,000 tons, while there was a right smart sprinkle of 5000-ton orders. In medium-sized and small orders there was a deluge. Altogether it has been a very satisfactory trade and has given good heart to the iron men. As for quotations, they are officially stated to be on the basis of \$7.25 for No. 2 foundry. But just now the iron trade is not of one mind and one hears of variations in price that

appeal to his credulity. But it is reasonable to conclude that the demand was sufficient to firm prices. The trade in warrant iron, which but a short time ago verged on demoralization, has improved in prices and figures that prevailed have been declined and marked up.

The export trade is quoted by some as being lively in inquiries, but leading to no result, while others report it as practically dead, because of the paucity of ocean room offering. The extra rate of insurance to cover war risk amounts to only about 1½ cents per ton, so that cuts no figure in it. It's simply a question of ocean room. The medium of ocean transportation is foreign bottoms, and the ownership of the iron is transferred to the foreign buyer when loaded on the vessel. Being non-contraband of war, and under a neutral flag, it has safe conduct on the high seas to its foreign owner. We cannot expect much in this direction at this season of the year, but in the present condition of things precedent may count for nothing in the great changes possible and which no man can foresee.

For a time it looked as if the war would be a detriment to all important enterprises here, but after the second sober thought confidence is strong enough to consider and mature the plans for a steel mill which is mighty near the stage of certainty. In fact, it is so near that one is tempted to anticipate the short intervening time and announce it as a fact.

The rolling mill reports a fine trade in its plate department, which it is supposed is due to government needs. In its general trade there has been small falling off. The minor industries report business as good, and, considering that a war is on hand, the amount of business coming in has been a surprise. Some of the more important shops are still refusing new business and some are running double shifts and utilizing every hour in the twenty-four. The business is of a general and miscellaneous character.

J. M. K.

Eine Abtheilung für Handel und Fabrikation in den Vereinigten Staaten.

[Bulletin No. 29, United States Export Association.]

Der *Manufacturers' Record* von Baltimore, der so eine grosse Macht nicht allein für die Entwicklung des Südens, sondern auch für die besten Geschäftinteressen des gesamten Landes bildete, und der bei allen grossen Tagesfragen, einschliesslich Tarif, Finanzen, u. s. w. stets kräftig für das Rechte eingetreten ist, hat wahrscheinlich nie eine bessere Bewegung geleitet, als die der Nationalen Vereinigung von Fabrikanten vorgeschlagenen Schöpfung einer Abtheilung für Handel und Fabrikation durch den Congress der Nation. In einem Brief an die Vereinigung zur Zeit, als diese Angelegenheit vor zwei Jahren zur Sprache gebracht wurde, gab Herr Richard H. Edmonds, der Herausgeber des *Manufacturers' Record* einige Thatsachen und Zahlen betreffs des wunderbaren industriellen Aufschwunges dieses Landes und der Nothwendigkeit der Ausdehnung unserer ausländischen Handelsinteressen, die der Wiederholung und eines sorgfältigen Studiums der Geschäftswelt Amerikas, wohl werth sind, sowie der des Auslandes. Dieselben zeigen klar die dominierende Stellung dieses Landes und weisen auf den Einfluss, den unsere geschäftliche Entwicklung auf die industriellen und commerciellen Interessen der Welt zu haben bestimmt ist, hin. In seinem Briefe an diesen Verein, der die prompte Annahme von Beschlüssen zur Folge hatte, die den Congress aufforderten diese Abtheilung für Fabrikation und Handel zu schaffen, sagte er unter Anderem folgendes.

WAR AND THE RAILROADS.

Revenue to Southern Lines from Movement of Troops and Supplies—Excellent Facilities for Transporting Large Bodies of Men—An Encouraging Outlook.

The effect of the war upon the railroad lines of the South has been the cause for much thought, not to say anxiety, among their security-holders in this country as well as abroad. It had been generally thought the property of Southern companies having terminals at tidewater might be exposed to the danger of attacks owing to the proximity of the Southern seaboard to the scene of operations, but the harbor protections have minimized this danger. It has also been feared that hostilities would result in a great decrease of travel in the South, and that the railroads in question would suffer a falling off in their business in common with the lines throughout the country. Thus far, however, the Southern railroads have been benefited rather than injured. Moving of troops to the points of mobilization at Chickamauga Park, near Chattanooga, Tampa, Fla., and Mobile, Ala., has proved an unexpected source of revenue.

Commands from all portions of the country have been en route for a fortnight, and up to date several thousand men have been transported to the camps. The ordinary passenger coach will carry sixty passengers on the average. Consequently, many extra passenger coaches have been needed, to say nothing of the baggage and freight cars for tents, horses and equipage. Cannon and war material, large quantities of provisions and other supplies needed for the camps have been brought from a distance, making another item in the railroad revenue which is very important, as continual shipments will be required until the armies leave the points of concentration. Most of the Southern railroad companies will be benefited throughout the war from this cause, as the movement of troops and supplies will be principally in the Southern States.

The excellent condition of Southern railroads has been shown by the manner in which they have handled the troops and their equipment. Thus far not a single fatality has occurred on any of the railroads in the Southern States in the dispatch of regular or special trains. The powerful locomotives now in use on most of the lines have caused the Southern companies to make a record for fast time, and although in many cases trains of ten to fifteen cars have been made up to follow each other at intervals of but a few moments from this or that city, speed of thirty to forty miles an hour has been maintained for long distances with delays of no more than a few moments at a time. The heavy steel rails and solid construction of the roadbeds allow fast time to be made without danger of accidents. To give an idea of the extent of the train service it may be stated that during one day recently the Southern Railway Co. alone handled over 100 carloads of troops, taking them to Chickamauga. The Illinois Central in twenty-four hours recently handled fifteen special trains from Northern and Western points to Southern camps. The Louisville & Nashville, the Nashville, Chattanooga & St. Louis, Seaboard Air Line, the Mobile & Ohio, the Atlantic Coast Line and Plant system have also been taxed with this traffic, but, as already stated, the various schedules have all been carried out without accidents of any importance and but few minor delays.

Regarding the business of the Southern lines a director of the Louisville & Nashville Railroad is quoted as saying that

this system would be a large gainer in both its coal and its iron traffic, not to speak of the transportation of troops and of food supplies intended for the army. He thought that general business in the South might be affected as much by war as in any other part of the country, but that a reduction in this respect would be more than offset in other ways. He was convinced that the business of export via the Gulf ports would not be at all checked except the small tonnage which has been accustomed to move in American vessels. The railroads will command the coastwise traffic.

As regards the Southern Railway, its officers fear no diminution of their earnings from the war. A traffic official of the company said that it would certainly secure a very fair share of business which the coasting lines have been accustomed to handle. The Southern's lines have direct access to the seat of army operations, and will be certain to continue to benefit from activity of war supply movements. Similar statements were made by a representative of the Mobile & Ohio Railroad Co.

An official of the Illinois Central is quoted to the effect that no stockholder need be at all anxious as to the effect of war upon the revenues of the road. Not only has there been of late a continued marked gain in the general traffic of the company, but there is also much revenue accruing from the transportation of troops and of government supplies, for which the road is the natural outlet to the Gulf, as it controls its own line from Chicago to New Orleans. The Illinois Central officials expect that their system will profit in its New Orleans business from this war in as large proportions as it did during the civil war, when its road to Cairo was a basis of supplies. It is thought that the company's export business in foreign vessels will suffer no interruption. There will be a minimum of risk attached to this traffic, though it will go through a district so near to the probable seat of naval operations. President Fish, it is understood, participates in these views.

It is stated that the Missouri, Kansas & Texas and other Southwestern roads expect to do as usual whatever export business comes their way at this season of the year. They may lose a little freight which coastwise steamship lines ordinarily deliver to them for local Southwestern distribution, but this will be more than made up by the long-haul traffic both north and south bound which before went by the water routes. The shipping of live stock from the Southwest is now starting and will keep the roads fully employed for a long time.

FOR TENNESSEE'S FUTURE.

Topics to Be Considered at the Industrial Convention.

Among the many syndicate articles prepared in advance of the meeting this month of the Tennessee Industrial Convention at Nashville upon a plan for increasing the interest in that gathering is one by Mr. Herman Justi, who has been energetic in the preliminary work of the convention. These articles are intended to apply systematically to all classes in the State, and Mr. Justi's paper calls for model farms. It takes the ground that every railroad in the State should establish experimental farms, inasmuch as they would help every farmer in Tennessee; they would be object-lessons for them and for intending immigrants that would be more potent than any other which could be given. He says:

"Should the Tennessee Industrial Convention lend its powerful aid to influence the railroads of Tennessee to establish

such a system, it will be evidence to the people of the State that their interests are not ignored; and, further, if it succeeded in convincing the railroads that such a step upon their part would be wise, and the railroads of the State at once establish such a system, the Tennessee Industrial Convention will have earned, and will have the gratitude and the support of the people of the entire State. It will mark the beginning of a happier day in Tennessee when prejudice shall melt away and all the people are resolved to work together for developing to the utmost the magnificent possibilities of one of the most favored sections in the whole world.

"Another effect of such a system will be to produce a sentiment in favor of better wagon roads; better wagon roads would mean more accessible markets, and these, in turn, would mean an increase in the productive power and in the value of farming lands. It also means higher values of all taxable property, greater general prosperity, lower tax rates and more just and more equal assessments.

"Never before in the history of Tennessee has such an opportunity been presented for helping ourselves as the present occasion affords. Shall we not embrace it, and go forward to achieve that glorious destiny which is ours only if we earn it by the labor of our hands and the activity of our minds?"

Twenty-five topics have been chosen for consideration by the convention. Of these, five relate to the subject of taxation. They are "The Exact Operation of Our Tax Laws Upon Manufacturing, Mining and Quarrying Enterprises Defined," "In How Far Can Tennessee's Legislature Correct the Evil Effects of Our Tax Laws," "The Tax Laws of Southern States Competing With Tennessee for Commercial Supremacy," "The History and Functions of Tax Commissions in Other States" and "A Comparative Statement of Tax Values and of the Expense of Government in Tennessee in the Past Ten Years." Other kindred topics are "Some Facts and Figures on the Subject of Waste," "A Few Facts Showing the Amount of Money Sent Away from Tennessee Annually That Should Be Spent at Home" and "Banking as Related to Industrial Development," while other topics cover the industrial and agricultural possibilities of the State, one of them dealing with the desirability of establishing industrial or mechanical schools and another with Tennessee as an inviting field for the manufacture of textile goods.

NEW ORLEANS DRAINAGE.

Central Power Station of the Extensive System.

The corner-stone of the central power station of the drainage system for New Orleans was laid last Saturday, and the ceremony is regarded as the formal beginning of the greatest work ever undertaken by the city, involving, as it probably will, an expenditure of \$10,000,000. For the present work the contract was given the lowest bidder, the National Contracting Co., of New York, of which Mr. Frank P. Mullen is general manager.

The station is planned to contain ultimately sufficient boiler, engine and generator capacity to deliver at the several pumping stations enough power to perform, through the pumps, 5000 horsepower of work. It is intended that the provisions made in the plans for power should be so ample that a surplus may be available for lighting, pumping or other uses of the corporation of New Orleans, thus enabling it, to a considerable extent, to own and operate its public service.

FOR ALABAMA'S WELFARE.

Plans of the Industrial and Commercial Association.

At the annual meeting of the Alabama Commercial and Industrial Association at Birmingham business of considerable importance to the future of the State was transacted. A resolution was adopted providing for the publication of 20,000 copies of a pamphlet showing the advantages of Alabama, to be distributed at Omaha this summer. A committee of five was authorized to memorialize the legislature for an appropriation to be expended under the direction of the commissioner of agriculture in systematically advertising the State through the East and West.

There were a number of interesting papers presented. In one on "Railroad Transportation and Its Relation to Commerce," Mr. F. G. Shepard sketched the growth of roads in Alabama, and showed how the industrial development in the State was dependent upon the railroads. He attributed to them the wonderful development of the coal and iron industries and the enormous increase in the number of cotton spindles. He said that there were cottonseed-oil mills in the State, exclusive of the one in Mobile, which paid to the farmer \$1,000,000 a year. Not one of these plants, he argued, would have been possible but for the railroads.

Mr. B. Steiner spoke on "Small Industries and Their Financing." He thought Alabama might have a larger number of small industries under a different system of taxation, and he offered a resolution to the effect that a committee be appointed to prepare an address to the taxing powers of the State, urging the necessity of uniformity and equality in the execution of tax laws. This resolution was lost, however, because it was believed that it might be construed into a reflection upon officials. A resolution was adopted asking for a committee of three persons on national development, its chief duty being to disabuse the minds of Northern capitalists of misunderstanding about the South.

The officers for the year were elected as follows: President, F. Y. Anderson, of Birmingham; vice-presidents, W. R. P. Wilson, E. B. Joseph, S. H. Dent, T. G. Bush, A. Hornberg, A. M. McGee, T. S. Kyle, H. B. Scott and B. Steiner; secretary and treasurer, A. B. Kennedy, of Mobile.

Though the output of coal in Alabama has begun to fall off a little, more is being mined now than ever before at this time of the year. Much of the output is being shipped to Mobile and other Southern coast towns, a portion of it intended for use of the navy. A great deal of coke from Alabama is going into Mexico. The Republic of Mexico uses from 600,000 to 700,000 tons of coke a year, and the trade which has been recently developed between that country and Alabama is not affected by the war, as the shipments are made by an all-rail route.

It is announced that the completion of the reorganization of the Anniston Car Works has been made.

The Elliott Car Co., at Gadsden, has recently secured contracts for 450 coal cars and box cars. It is thought that this will mean employment all the summer for 300 men.

Hostility to Corporations.

The sentiment of hostility to corporations which a class of politicians make it their business to continually keep before the people as a living issue, one by which they hope to gain office, but for no reason of the public good, is pernicious and short-

sighted, and greatly injurious to the industrial development of the State. A corporation, whether it be a bank, a factory, a railroad or a company of individuals united for the purpose of carrying on any business whatever, is valuable to a community in that it does not die; it has the capacity of succession, and the death of its president, its secretary or any other officer does not necessarily affect it. It continues to do business, it grows yearly stronger and capable of doing more business. It becomes a permanent institution on account of its various branches, its correspondences, its connections. When a member of a firm dies a new firm is formed, often with a different name; there must be a winding up of the old business and a new one started. When an individual dies there must be a disposition of his effects and his business dies with him. But with a corporation it is different. You have business with a bank today, tomorrow the president dies, but the relation of your business is unaffected; it is with the bank, not the president. Corporations conserve the wealth of a community; they keep it intact; it is corporations, by virtue of their power of succession, which serve to make a community permanently rich. Col. J. B. Kilbrew, writing on this subject in a recent issue of the *Baltimore Manufacturers' Record*, says on this point:

"Through the agencies of corporations New England is 'shaking every bearing tree and catching in its lap the most precious products of every State.' Her insurance companies, trust companies, banking institutions, cotton and woolen factories, carpet and shoe factories, establishments for making glassware, fancy goods, buttons, cars, clothing, combs, food preparations, in the aggregate making over 26,000 manufacturing establishments, with an investment of \$630,000,000, are all run under corporate powers. Nor does this include the hundreds of millions invested in railways, ships, wharves, etc. These corporations have made the whole of New England rich in the midst of natural poverty, and in a most rigorous climate. Give to the people of the South the same advantages that New England has derived from the free use of corporate powers and every farmer will be made glad, every waste field will be reclaimed, every hillside will bear fruit and every child will be educated."

The hostility to all forms of aggregated wealth must be overcome before our State can prosper. Instead of attacking New England because she has these great corporations which have made her powerful, why not take the other view and say, "Since corporations have made New England rich, we will get corporations ourselves, we will encourage their growth and will help them all we can, confident that their interests are our interests, that prosperity for them means prosperity for us all."

Here is an important question, one which should be reflected on by every citizen of the State. The prejudice to corporations does exist to a certain extent among certain classes in the State, but corporations are necessary to the State's advancement and development. The farmer and the industrial class should realize this. They can hope to make nothing out of politics, but if the State and its interests prosper they can hope to be partakers in the general prosperity which ensues. The industrial convention should lead in this educational work.—Nashville American.

The Chattanooga (Tenn.) Chamber of Commerce has appropriated \$50 to be used by its immigration committee in advertising the city.

COMMERCE.

This department is devoted to a record of the rapidly developing commerce of Southern ports.

TRADE WITH SPAIN.

Exchange Between It and the United States Comparatively Slight.

Mr. Frank H. Hitchcock, chief of the section of foreign markets of the United States Department of Agriculture, has prepared a bulletin on Spain's foreign trade during the period of 1891-1895. Of the foreign commerce carried on by Spain during that period about 70 per cent. was with France, United Kingdom, Cuba and the United States in their order. The United States represented 6.32 per cent. of this trade, the average yearly value of goods transferred being \$19,916,975. The United States ranked third among the sources of Spain's import trade, furnishing goods that had an annual valuation of \$17,101,983, or 10.34 per cent. of the value of all imports.

On the other hand, the average annual value of goods sent from Spain to the United States was \$2,814,992, or only 1.88 per cent. of the total shipments to all countries. The principal agricultural imports to Spain in the order of their value are cotton, wheat, tobacco, sugar, hides and skins, coffee, cocoa, wool and live stock.

Cotton, which holds the foremost place among the agricultural imports, was imported to the extent of \$15,739,667 per annum. Of the cotton imported, 75.21 per cent., measured in value, came from the United States, the sum paid for it averaging \$11,830,544 per year. Stated in quantity, the average imports of cotton into Spain were 111,236,849 pounds a year, and of this amount 106,401,697 pounds were procured from the United States. The percentage of wheat imports from the United States was 8.08, of wheat flour .57, of other cereals 2.52, of leaf tobacco 21.58, of hides and skins .04, of coal .17.

The percentage of tonnage of merchandise carried by vessels entered and cleared at Spanish ports in Spain's trade with each of the principal foreign countries was 3.91 for the United States.

Trade With Baltic Ports.

From time to time the *Manufacturers' Record* has referred to the opportunity for the export business with Denmark, which should be utilized by Southern merchants. A deep interest has been manifested in this country, especially by the business men of Louisville, Ky., which has been in a great measure due to the efforts of Mr. Charles E. Currie, Danish vice-consul, who has already contributed several interesting communications on the subject to this paper. Mr. Hans Schack, representative of the United Steamship Line, which has a fleet of vessels plying between Denmark and the United States, was recently interviewed on the subject of export trade. Referring to his company, which has a vessel line out of Newport News, he said:

"I learn that 1,000,000 bales of American cotton are shipped annually to Russia. The line of steamers running direct from Newport News to the Russian points has overcome a condition which exporters disliked. Formerly their shipments had to be made to Liverpool and Bremen and other English and German ports, and then rehandled. This new line obviates that. I believe the people of Denmark and Copenhagen know more about Louisville than they do about New York. Much of this is due to our consul here, Mr. Currie, who has taken so much

interest in opening up relations with Denmark.

Coal and Coke Shipments.

The coke trade of the upper Potomac region of West Virginia is extremely active considering the war outlook. The total shipments for the week ending April 9 were 3702 tons, and for this year to date the shipments have been 63,758 tons, as compared with 48,908 tons for the same period last year.

The coal shipments from the George's Creek-Cumberland region by rail for the week ended April 23 aggregated 88,622 tons, by Chesapeake & Ohio canal, 6489 tons, and for the year to date 1,236,357 tons, an increase of 161,853 tons over the corresponding period of 1897.

The coke trade between Alabama and Mexican points continues to be brisk in spite of the war. Shipments are being made regularly, and the Jefferson Coal & Railway Co., of Birmingham, Ala., which is one of the largest exporters, is operating its ovens to their full capacity. It is stated that altogether the Mexican manufacturers use about 700,000 tons yearly. The exports from Alabama have begun only recently, as mining companies of West Virginia and Maryland have heretofore obtained the bulk of the business.

Prospect for Grain Exports.

It seems to be the general belief among exporters that vessels flying the British flag will be allowed to trade between the United States and foreign countries without the danger of capture either by the United States or Spain. The friendship of this country for Great Britain and the intimate commercial relations between the two would absolutely prevent such a step, while Spain dare not, knowing the consequences which would ensue. Consequently, the grain trade, it is believed, will be but little affected, and, according to New York dispatches, exporters purchased during the month of April very large quantities of wheat and grain which will be sent abroad in British bottoms. It is the opinion of European experts that the supply of breadstuffs in Great Britain and on the Continent is extremely low, and Russia will be unable to fill the demand. Therefore the grain trade of the United States promises to continue on a large scale in spite of the war, which will be another factor in keeping the balance of trade in our favor.

Baltimore Steam Packet Co.

At the annual meeting of the Baltimore Steam Packet Co., operating the Old Bay Line, the present directors and officers were re-elected, with the exception of Hon. William Pinkney Whyte, who is succeeded by Solomon Frank, of Baltimore. Mr. R. C. Hoffman, who has been the executive head of the company for several years, was unanimously re-elected.

New Route to Asiatic Ports.

The construction of the railroad line through Mexico between Coatzacoalcas, on the Gulf of Mexico, and Salina Cruz, on the Pacific coast, opens up a new route for the export of Southern products to Asiatic ports. This line, which is 160 miles long, was constructed under the auspices of the Mexican government. Messrs. Pearson & Co., English contractors, have arranged to build jetty systems, wharves, etc., at both of the terminal points. It is stated that the harbors allow the entrance of large vessels, and that arrangements are to be made to operate a steamship line from the western terminus to China and Japan. Southern merchants can ship from the Gulf

ports to the Atlantic terminus of the railroad, thence across to the Pacific side and by steamer to the proposed destination. This route, it is estimated, is much shorter than any other now in use at present.

Bay Steamer Schedules.

Owing to the government regulations, which forbids vessels from leaving or entering Baltimore harbor after dark, the Old Bay Line and the Chesapeake Line of steamers have changed the hour of sailing from 6.30 o'clock to 5.30 o'clock. The steamers of the Old Bay Line will leave Union Dock, not touching as in the past at Canton wharf. As considerable alarm has been caused by newspaper reports relative to the placing of mines and torpedoes in the channel, the *Manufacturers' Record* is authorized to state that the vessels of both the Chesapeake Line and the Old Bay Line are of such light draught that there is no possibility of striking these obstructions; however, to guard against any possible danger, the Baltimore Steam Packet Co.'s vessels will not go through the regular channel, as there is sufficient depth of water outside to allow them to take an independent course.

Jettings at the Ports.

More than 8,000,000 bushels of grain was shipped from Baltimore during the month of April, and it is expected that this month will prove a record-breaker.

According to a New York dispatch, in view of the success Alabama pig-iron producers have met with in Europe, makers in Nova Scotia are now said to be investigating the possibilities of the export trade.

The Merchants & Miners' Transportation Co. announces a change in its time schedule as follows: Steamships will leave Baltimore for Providence, R. I., Tuesdays, Thursdays and Sundays at 4 P. M.; also for Newport News and Norfolk on the same days at the same hour.

A recent arrival at Charleston, S. C., was the British steamship *Indravelli* from the East Indies. The cargo consists of 28,000 bales of jute butts and 2500 cases of shellac. The 28,000 bales of jute would be about equal to 23,000 bales of cotton. From this it can be seen that the *Indravelli* is a very large ship. The jute butts, as is well known, are used in the manufacture of cotton bagging.

It is understood that the proposed steamboat line on the Mississippi river, which has been agitated by the commercial men of St. Louis, especially the Merchants' Exchange, will be in operation within a few weeks. What is known as the White-Collar Line, running between Cincinnati and New Orleans, will use at least a portion of its fleet for trade between St. Louis and the Louisiana metropolis. It is calculated that at least three steamers will be put on at first, the number to be increased as business demands.

The Knoxville Chamber of Commerce is considering a proposition of representatives of Hans Rees's Sons, of New York, one of the largest tanning establishments in the United States, for the establishment of a branch tannery at Knoxville. They are seeking to secure a free site of about eighteen acres. The size of the proposed plant would probably represent a pay-roll of 150 men, or about \$35,000 or \$45,000 per annum, and an expenditure of about \$60,000 more for bark, etc., beside the purchase of material for the buildings and machinery. The matter is merely tentative at present.

RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

Along the Illinois Central.

The industrial development along the line of the Illinois Central Railroad has been from time to time referred to in the Manufacturers' Record. The work of Industrial Commissioner Power has been strikingly illustrated by the diversity and importance of the factories recently located and others proposed. Since July 1 last the Illinois Central has had more new manufacturing located on its system than in the whole of the preceding year.

Among the industries recently started are plants and manufacturing for the production of spokes and wheels, organs, road scrapers and heavy machinery, condensed milk, cereal materials, cottonseed-oil mills and saw mills. In all 1100 employees will be engaged in these factories, which represent a capital of more than \$1,000,000. Six of the new plants have been located south of the Ohio river.

Jackson, Miss., has secured three new cottonseed-oil plants. These are all independent concerns, and have no connection with the American Cotton Oil Co. Of the manufacturing plants nearly all have gone South in order to be nearer the lumber districts. The wheel and spoke plant removed from Indiana and the others went from Northern Illinois.

A Proposed Alabama Line.

In a letter to the Manufacturers' Record, Joseph Shackelford, of Danville, Ala., one of the directors of the Decatur, Danville & Southwestern Railroad Co., writes that it is proposed to build from Decatur to some point on the Kansas City, Memphis & Birmingham Railroad, or on the Georgia Pacific branch of the Southern, either Jasper or Cordova, and to extend ultimately to Tuscaloosa, Ala. From Decatur to Jasper the distance is about eighty miles, to Danville eighteen miles. This proposed road will penetrate forests of chestnut and oak, also a forest of long-leaf pine. He writes as follows: "It will go through coalfields within six or seven miles of Danville and will pass through the coalfields of the Warrior river and its tributaries. Those who are working for this road are now securing the rights of way along the line and have been quite successful so far. We have secured some stock and the promise of more, but we wish to secure the rights of way all along the line, and donations, before we approach any company or capitalists on the subject of building it."

Sievern & Knoxville.

According to a dispatch from Charleston, S. C., the present owners of the Greenwood, Anderson & Western Railroad have completed it to Batesburg, S. C., from its original terminus, a distance of eight miles. The company has secured a charter under the title of the Sievern & Knoxville Railroad Co., and has elected the following directors: Richard A. Springs, of New York; Messrs. F. W. Wagener, George A. Wagener, J. E. Burke, of Charleston, and Mr. Isaac W. Fowler, of Aiken. The directors elected the following officers: Richard A. Springs, president, and P. F. Sullivan, secretary and treasurer.

Pecos Valley Extension.

Arrangements have been made for the proposed extension of the Pecos Valley Railway into Texas to connect with the Fort Worth & Denver City road at Amarillo, Texas. The present northern

terminus of this line is Roswell, New Mexico, and it traverses the valley of the Pecos river, one of the most fertile in the Southwest. In a letter to the Manufacturers' Record, E. O. Faulkner, of Eddy, New Mexico, receiver and manager, writes as follows: "The contract for the extension of the Pecos Valley Railway, which, after the reorganization is completed, will be known as the Pecos Valley & Northeastern Railway, between Amarillo and Roswell, has been let and work will start May 1. Mallory, Cushing & Co., of Chariton, Ia., have the contract. The distance is 206 miles, and it is intended to have the road completed by December 15 next."

Tennessee Northern Extension.

It is stated that the Cumberland Coal & Iron Co. and the Tennessee Northern Railway Co. are making arrangements to carry out further plans for the development of their property in the vicinity of La Follette, Tenn. They own about 35,000 acres of land in Campbell county, and, it is reported, will extend the railway now in operation to Jellico through to this property, a distance of twenty miles, also to Middlesboro, Ky., a distance of thirty-three miles. The Cumberland Coal & Iron Co., it is announced, have made arrangements to export a large quantity of lumber through Messrs. Jones & Wythier, of Boston. They are preparing to begin operations with two mills, having a capacity in all of 100,000 feet of lumber daily. It is also stated that the company is preparing to furnish furnaces in the vicinity with from 150 to 300 tons of ore daily.

Railroad Notes.

Charles B. Slout has been elected general passenger agent of the Chicago, Rock Island & Texas system. He has been acting as assistant general passenger agent.

The South Atlantic & Ohio Railroad Co. has been sold by order of the court to a representative of the Clyde Steamship Co. and others, who are bondholders of the line. The line is seventy-one miles long and connects with the Louisville & Nashville system at Big Stone Gap, Va.; also with the Norfolk & Western at Bristol, Tenn.

The issue of the Baltimore & Ohio's "Book of Royal Blue" for April is one of the best numbers of this magazine which has yet been published. It is largely devoted to Atlantic City, and contains a number of very good illustrations of this noted resort. A number of other features contribute to make it one of the best, if not the best publication issued for advertising purposes by American railroad companies.

The announcement is made of the death of Charles H. Phinizy, late president of the Georgia Railroad & Banking Co., and a prominent capitalist of Augusta, Ga. Mr. Phinizy had been in a great measure identified with the development of Georgia. For seventeen years he was president of the Georgia Railroad, one of the largest and wealthiest corporations of the South, recently retiring on account of ill health. He was also extensively engaged in the cotton business.

The issue of the Official Railroad Guide for May is especially interesting to those who intend making summer trips, as it contains a number of changes of time, also special timetables to mountain and seashore resorts, which make it indispensable to the traveler. This is without doubt the most accurate publication of the kind in the world, and although the many timetables which it contains must be revised monthly, it can be relied upon in all cases for accuracy.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

The Handling of Cotton.

The whole question of cotton handling—the round bale vs. the old square bale—is fully presented in a handsome pamphlet of seventy pages just issued by the American Cotton Co. In this pamphlet the merits of the new system are clearly set forth, the details of operation are given, with a list of the plants working last season, a list of mills using the round bale and much other information. In this pamphlet the company says:

"The method of the American Cotton Co. throws open the use of the round-bale machinery to the entire cotton-producing, ginning, handling and consuming world, and on terms that are liberal and just and make it to the interest of every community to secure one for the putting up of its cotton; to every ginmer to put in one for the profit there is to himself and his customers; to every railroad to have them put up at every station upon its lines; to the insurance companies, the warehouses, the steamships, to the cotton buyers and to the mills."

No one interested in cotton as a grower, ginmer, handler or manufacturer can afford to ignore the vital question that now interests all cotton circles, viz., the relative advantages of the round-bale system and the old square bale. A copy of this pamphlet will be sent free to any address by the American Cotton Co., 310 Merchants' Exchange Building, St. Louis, Mo.

A New Roller Gin.

At last week's meeting of the New England Cotton Manufacturers' Association at Boston, Mr. Thos. W. Prior, of Philadelphia, read a paper on the new Prior roller gin. He quoted Mr. Edward Atkinson to show the loss from defective ginning, and claimed that the new gin preserves absolutely the natural length of the staple, straightening the fiber in the ginning and increasing the value of the cotton in the open market three-fourths of a cent per pound, or a total on the crop of 1897 of \$23,750,000, and said:

"The basic feature of the new gin is, of course, the patented roll, which is so tenacious in its grip that it removes all the cotton from the seed, preventing the percentage of loss on notes and picker waste, and absolutely preserving the length of fiber, presents the cotton in perfect shape for the spinner.

"The roll is composed of horse hair imbedded in rubber, with the ends of the hairs pointing outward, each hair constituting an indestructible tooth; the roll surface presenting about 3360 of these teeth to the square inch, which, projecting the infinitesimal part of an inch above the rubber, form a surface so tenacious that it has fully as strong a grip on the cotton staple as the saws of the saw gin without their fatal effect on the fiber.

"The vulcanized rubber and horse-hair teeth combined wear as leather wears around a metal nail in the sole of a shoe; for, as the nail always projects slightly as the leather wears around it, so these teeth in use always remain a trifle above the rubber, sufficiently to keep a perfect grip upon the cotton. Actual use has

demonstrated that the roll will stand the hardest kind of wear for three or four seasons before renewing.

"In the ginning the cotton is thrown into the hopper directly upon an exposed part of the roll, which seizes the fiber, carrying it toward the presser blade, where it is met by a plunging comb, which pushes back the seed and foreign particles, allowing the pure cotton to pass under the presser blade, while the seed and other substances are expelled from the hopper in the opposite direction.

"The cotton is then carried around by the roll until it meets an underneath brush, which removes it from the roll, allowing it to fall upon a moving screen which permits the sand and leaf particles to sift through, the cotton then being carried in a 'bat' upon a movable apron to the press."

From Old to New.

Much of the basis of competition of cotton mills in different parts of the country seems to be a matter of machinery. In a paper before the recent meeting of the New England Cotton Manufacturers' Association, Mr. Malcolm Campbell, of Woonsocket, R. I., presented some interesting figures showing what can be saved by revamping mills having old machinery. The figures quoted were for a mill which in 1895 was working with old machinery and in 1898 with new. He allowed 11 per cent, on the price of labor in favor of the year 1895. The mill makes on an average 31.50 yards from about 4.25 hank rolling. The total cost for everything was \$8.75 per pound in 1895 and \$6.39 a pound in 1898, a saving of \$1.76 a pound. Itemized the cost of the total of labor and supplies per pound was as follows:

	1895.	1898.
Carding	\$.590	\$.648
Spinning	1.400	1.214
Slashing .....	.367	.758
Weaving	3.681	3.000
Power .....	.425	.431
Clothroom .....	.168	.196
Lighting .....	.054	.021
Miscellaneous .....	.830	.271
Office and superintendent	1.022	.769

10,000-Spindle Mill for Cedartown, Ga.

Arrangements have been completed for the erection of another cotton mill at Cedartown, Ga., and application has been made for the incorporation of the new company. It is to be known as the Paragon Mills, with capital stock of \$500,000, and privilege of increasing to \$300,000 upon a vote of stockholders. Organization has been effected by the election of Mr. M. O. Berry, of Columbus, Ga., as president, and A. W. Birkbeck, of Cedartown, as secretary-treasurer, and they will soon award contracts for the erection of the necessary buildings and the equipment of machinery. The main building will be 250x110 feet in dimension, equipped with from 7000 to 10,000 spindles and complementary machinery for the production of yarns for hosiery and underwear mills. Each week the new plant is expected to consume from 100 to 125 bales of cotton, transforming them into about 50,000 pounds of the finest yarns, and 260 hands are to be employed.

Annual Meeting.

The annual meeting of the stockholders of the Graniteville Manufacturing Co., of Augusta, Ga., was held on April 21. The meeting was devoted to the transaction of routine business, the officers' reports being read and received with entire satisfaction. The company's two mills (Vaucluse and Graniteville) were shown to have been operated during the year past successfully. Graniteville Mill produced 14,130,900 yards of cloth, and Vaucluse Mill 6,444,122 yards of cloth, a total of 20,575,022 yards. The

company's capital stock is \$600,000, and a semi-annual dividend of 5 per cent. was declared, payable in July. Mr. H. H. Hickman was re-elected president, and the following directors: W. A. Latimer, W. E. McCoy, Samuel Tannahill, of Augusta, Ga.; Hamlin Beattie, of Greenville, S. C., and A. E. Hutchison, of Rock Hill, S. C.

Batting Mill at Tuscaloosa, Ala.

The proposed batting mill at Tuscaloosa, Ala., for which the Tuscaloosa Business Association has been negotiating, has been assured. The company that will erect it is now organizing, and will choose officers this week. Among those interested are D. J. Griffin (who will be manager), W. B. Oliver, Victor Friedman, E. B. Nuzum, A. M. McGehee, Miss Jemison, P. F. Brady (to be secretary), and Francis Brady. A building 135x210 feet in size will be erected at once and equipped with fifty roller cards, 125-horse-power boiler, 100-horse-power engine and other apparatus necessary for the production of cotton batting. About fifty people will be employed.

Marietta (Ga.) Knitting Mill Enlarging

The capital stock of the Marietta Knitting Co., of Marietta, Ga., has been increased from \$7500 to \$18,000, and some improvements will be made to the plant at once. The main building will be enlarged with a 35-foot addition, and new machinery will be installed, including fourteen knitting machines, dryers, finishing machinery, etc. This improvement will give the mill a daily capacity of nearly 200 dozen hose. Messrs. R. H. Borthent and J. H. Barnes are managers of this enterprise.

New England Cotton Men.

At the annual meeting last week of the New England Cotton Manufacturers' Association, at Boston, the following officers were elected: President, Stephen A. Knight, Providence, R. I.; vice-presidents, Fred C. McDuffie, Boston, Mass.; Henry T. Whitin, Northbridge, Mass.; directors for three years, George F. Whitin, Manchester, N. H.; John Tempest Meats, Taunton, Mass.; director for two years, Charles H. Richardson, Clinton, Mass.

The Cotton Movement.

In his report for April 29, Secretary Henry G. Hester, of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight to date was 10,526,896 bales, an increase over last season of 2,304,703 bales; exports 6,654,910 bales, an increase of 1,204,987; Northern spinners' takings 2,131,268 bales, an increase of 537,061, and Southern spinners' takings 879,716 bales, an increase of 44,898 bales.

Textile Notes Abroad

The advance sheets, No. 27, of consular reports contain considerable information of value to those engaged in the textile industry. Wm. P. Atwell, commercial agent at Roubaix, France, states that two new cotton-spinning mills were started in Lille in 1897. There was a heavy production of coarser numbers of cotton there, but the production fell off one-third during the second quarter of 1897 at Roubaix, while work slackened also at St. Quintin. The flax-spinning mills at Lille are working at full force with an increase in the number of bobbins. Production in woollens fell off at Cambrai and at Avesnes.

Thomas Ewing Moore, commercial agent at Weimer, Germany, reports that during 1897 the value of cotton imports at Bremen was \$42,721,000.

Consul-General Gowdy, of Yokohama,

Japan, reports that in December, 1897, there were in operation in Japan sixty-five spinning mills with 773,738 spindles. During the year 20,471,141 pounds of cotton were consumed. There were 12,672 male operatives and 42,656 female operatives.

The decrease of the crop of hempseed was so great in Russia last year that at some parts the sale of the seed ceased soon after the opening of the season. The harvest of flaxseed was 28.5 per cent. less in 1897 than in 1896.

Textile Notes.

The Southern Cotton Spinners' Association will hold its annual convention at Charlotte, N. C., on May 12.

The Modena Cotton Mills, of Gastonia, N. C., contemplates the erection of a new mill, to be devoted to the production of yarns only.

The Albion (Md.) Cotton Mills are busily engaged in filling orders for army tents and other cotton-duck material for the national government.

The Newport Cotton Mill, of Newport, Tenn., is to be sold May 18 at special commissioner's sale by Mr. John Fisher. The plant includes 192 looms, dyeing and drying machinery, necessary power plant, etc.

Work is progressing on the addition to the Liberty Woolen Mills at Bedford City, Va., and the entire equipment of machinery in the old building is being overhauled and repaired. Some new machinery is also to be added.

The Pelham Mills, of Pelham, S. C., is making some improvements to its plant. A new 600-horse-power engine is being installed, also 1000 spindles and some additional machinery will be installed in the mill's paper-box-making department.

The Millfort Mill Co., of Fort Mill, S. C., will rebuild the portion of its mill that was recently destroyed by fire and will equip with the latest improved machinery obtainable. Lappers, drawing, carders, etc., will be required. Mr. W. A. Watson is president.

The Norwood Cotton Manufacturing Co., of Norwood, N. C., reported in this department last week as fully organized, will build at once a 5000-spindle cotton mill, using twistors, and is now ready to correspond regarding the purchase of the necessary machinery. Dr. J. A. Tyson, secretary, can be addressed.

The Marietta Knitting Co., of Marietta, Ga., is doubling the capacity of its plant and putting in considerable machinery. The present equipment contains thirteen knitting machines. Machinery for finishing fast-black hosiery, Bress dryers, etc., is wanted and bids on same will be received now. Mr. John H. Barnes is general manager of the company.

The newly-organized Oxford Knitting Mills, of Barnesville, Ga., recently reported, has received its charter. The building for the plant has been completed, and the machinery is expected to arrive this week. About seventy-five hands will be employed. J. C. Collier is president; E. C. Widdows, vice-president and secretary, and W. M. Howard, treasurer.

The United States Circuit Court has ordered the sale of the Batesburg Cotton Mill, of Batesburg, S. C. The date set for the sale is June 1. The property includes the entire mill plant, equipment including 3500 spindles, two 100-horse-power boilers, 150-horse-power engine, 100 looms, electric-light plant, twenty-seven cards, slubbers, speeders, slashers, calendar press, etc., all ready for operation. Mr. G. H. Sass is special master in this sale, and Messrs. R. M. Marshall & Bro. are the auctioneers.

COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

The Market for Cottonseed Products.

New York, N. Y., May 4.

The upward movement indicated by our last report culminated in an advance in the prices of cotton oil of all grades. The features of the market include a stronger feeling, together with an increased demand, for domestic as well as for foreign consumption. The heavy advance in ocean freight, together with the increased cost of insurance incidental to war risks, conjointly checked what, under other conditions, would have proved a busy week in cotton-oil exports, notwithstanding the higher prices for the article itself. With regard to the market for provisions in its bearing on cotton oil, a strong speculative sentiment obtains at this writing, with prices steadily advancing. Lard particularly shows signs of increased strength, 5.92 cents being quoted for July delivery, Chicago, an improvement of 20 points in twenty-four hours, while September lard has sold up to 6 cents. Tallow is firm at 3½ cents, but in the event of sufficient freight room being obtained the market would probably advance. Summer yellow is selling at 24 cents, while to 24½ cents is asked. Crude at this point is yet a scarce article, and 21 cents is asked by holders. There is evidently a disposition on the part of holders, both here and in the South, to keep their stocks, pinning their faith to the belief that materially higher prices will soon prevail. The cessation of production and the position of allied markets would appear to strengthen this sentiment. With regard to the high ocean freights and insurance, it is believed, now that the Spaniards have suffered a very damaging defeat, it is only a question of a comparatively short time when they will give up the hopeless task of opposing our forces, when normal conditions shall again prevail and activity in cotton-oil trading, as in other lines, will proceed without the restrictions which at present hamper the trade. In England, Holland, France and Italy cotton-oil prices have been marked up. In England 1s. 3d. has been added to the former price (15s. 6.), and in France a corresponding advance has been made. Winter yellow has been advanced to 27 and 28 cents by the leading producers. The following are closing prices: Crude, prime, 20 to 21 cents; crude, prime f. o. b. mills, 16 to 16½ cents; crude, off quality, 19 to 19½ cents; yellow summer, prime, 24 to 24½ cents; yellow summer, butter, 27 to 28 cents; yellow summer, off quality, 22½ to 23 cents; white summer, 25½ to 26 cents; yellow winter, 29 to 31 cents; white winter, 30 to 32 cents, and soap stock, ¾c. to 1½c. per pound. Exports for the week are 3507 barrels and receipts 6240 barrels.

Cake and Meal.—Advices from the United Kingdom are to the effect that there is a much better inquiry, as stocks of undecorticated in some markets are nearly exhausted, thus creating an improved demand for American decorticated. Prices of the latter are firm, both at the South and abroad. The scarcity of freights has advanced, prices of Egyptian cottonseed in England, April and May cargoes, being quoted at £5 2s. 6d.

Cottonseed-Oil Notes.

The seedhouse and several warehouses of the Victoria Cotton Oil Co., of Victoria, Texas, containing linters, cake and hulls, were destroyed by fire on the 26th ult. The engine-house and most of the

machinery were saved. The loss is estimated at \$3500 to \$4000, the buildings alone being insured.

Cottonseed products in Texas show but few changes in value. Cottonseed oil is firmer, while meal and cake are steady, with some foreign inquiry. Prime crude cottonseed oil is still quoted at 14½ to 15 cents, and prime summer yellow is offered at 16½ to 16¾ cents; cottonseed cake and meal, \$15 to \$16.50, all f. o. b. mill at interior Texas points, according to location.

The market for cottonseed products in New Orleans is quiet, with no material change in values. Cottonseed oil is firmer, with a better demand for foreign shipment. Cottonseed cake and meal are both steady at previous figures. Receivers' prices are quoted as follows: Cottonseed, \$7 per ton of 2000 pounds net to the mills, no commission of any kind to be added; cottonseed meal, jobbing per carload at depot, \$17.50 per short ton of 2000 pounds; for export, per long ton of 2240 pounds f. o. b., \$18.75; oilcake for export, \$19 to \$19.25 per long ton f. o. b.; crude cottonseed oil, at wholesale or for shipment, strictly prime oil, crude 15½ cents loose f. o. b. tanks at Mississippi valley points; in barrels 18 to 18½ cents; cottonseed hulls, delivered, per 100 pounds, according to location of mill, 12 to 17½ cents; linters, according to style and staple—A, 3½ cents; B, 3½ cents; C, 2½ to 3 cents; ashes, none; refined cottonseed oil, prime in barrels per gallon at wholesale or for shipment, 21½ to 22 cents for export.

DAINGEROUS DEMANDS.

A Review of the Interstate Commerce Commission's Programme.

The demands of the interstate commerce commission for increased powers, as embodied in its last annual report, and Senate Bill 3354, introduced by Senator Cullom, are both dangerous and calculated to invest the commission with attributes never intended in the original law. The current number of the Forum contains an able article clearly pointing out how far-reaching such amendments would be and their probable effect upon the internal commerce of the country.

So sweeping are the proposed changes that it would, indeed, be difficult, as the writer remarks, to imagine any sort of traffic regulation or control which these extensive powers would not embrace. Should such a measure become law it would, in effect, make the interstate commerce commission the traffic manager for each of our interstate railroads, and give a political body the practical control of property which in the aggregate represents nearly one-fifth of the total assets of the United States.

To grant such a request, far from giving trade new life, would stifle enterprise, destroy competition and create a condition of affairs far worse for the country than absolute State purchase of railroads.

It is truly urged in the article under review that the commission's demands will not correct the evil which requires correction, namely, pernicious discrimination and unjust charges, for the claim of extortionate charges cannot successfully be made. Other evils are undoubtedly guarded against in the act as it stands and, so far as the commission has exercised its legitimate functions, the results have been of public benefit. The danger lies in this itch for additional power, this grasping after far-reaching legislation not warranted by existing conditions. Such an endeavor on the part of the commission cannot meet with public approval.

The taxable valuation of Griffin, Ga., for this year is \$1,500,324, a net increase of \$121,074 over 1897.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.

Baltimore.

Office Manufacturers' Record,
Baltimore, Md., May 5.

The general tone of business throughout the several channels of the local lumber market has shown up more favorably during the past week and the volume of trade shows some expansion. Receipts of lumber by water are not so large as usual, but under war conditions, which are affecting the coastwise trade, this is to be expected. There is yet, however, enough coming to keep stocks fairly well assorted, while prices are generally firm and advancing. This is especially true of yellow pine, and air-dried lumber shows an advance of 50 to 75 cents per 1000 over last week's figures. Four quarter No. 1 edge flooring is now quoted at \$13 to \$13.50, and No. 2 at \$10 to \$11.50; No. 2, 12-inch stock, \$13 to \$13.50, and 4-4 edge box lumber \$8 to \$9. The demand during the past week has been fair and boxmakers, builders and planing mills have been buying more freely. In kiln-dried North Carolina yellow pine values continue firm, with an advancing tendency. Cypress is quiet, with prices steady. In white pine the demand has improved, while values are appreciating under the present conditions. The hardwood business is fairly active, with a fair demand from local and out-of-town buyers. Stocks are generally light and prices firm and higher. The export trade is of moderate volume and shippers are contracting very little new business, the bulk of operations going to fill old contracts.

Savannah.

[From our own Correspondent.]

Savannah, Ga., May 2.

During the month of April the volume of trade in nearly every avenue of the lumber industry of this port has been well maintained, notwithstanding the war with Spain. The shipments coastwise for April amounted to over 12,000,000 feet of lumber and over half a million feet of crossties. Although the coastwise lumber trade has been injured considerably by the scarcity of tonnage, there is a fair movement of all kinds of freight to Northern ports. The demand for lumber is good, and manufacturers, both here and at other Georgia ports, have plenty of orders and are receiving numerous inquiries as to prices and ability for furnishing lumber. Many persons engaged in the lumber trade hope that owners of vessels will soon begin to charter more freely and that present difficulties with Spain will be speedily settled. The present rates for vessels to carry lumber are excessive, charters having been made at \$5.25 to \$5.50 from this port and \$6.25 to \$6.50 from Fernandina, Fla., to New York. Prices for all desirable grades of lumber are firm and advancing, and in the absence of water shipments and the resort to shipments by rail values are likely to show a material advance. During the past week the schooner Margaret A. May cleared for Wilmington, Del., with 371,337 feet of pitch-pine lumber cargo by the Georgia Export Lumber Co. Steamers for New York, Boston, Philadelphia and Baltimore are carrying out all the lumber offered when they can afford freight room, and during the past week over 1,000,000 feet were shipped to the above ports. The quotations for freights on lumber today are \$4.75 to \$6.25 for a range including Baltimore and Portland, Me. There is very little busi-

ness doing with foreign ports and the rates to the West Indies charged by foreign vessels are so exorbitant that very little business is being done with that section.

Jacksonville.

[From our own Correspondent.]

Jacksonville, Fla., May 2.

The lumber industry, which is the primary industry of this port, is now passing through a period of restriction in trade which it is hoped may be only temporary. The present war with Spain has tended to withdraw the usual tonnage of vessels entering this port and the usual rates of \$4.75 per 1000 feet current at this season have been advanced during the past month to \$6.75, and at the moment vessels are scarce at \$8. Owners of vessels are extremely cautious in making charters, and sales of lumber are now generally made f. o. b., the coastwise commission business being practically suspended for the time being. Among the extensive shippers of lumber from this port the Atlantic Coast Export & Lumber Co. have a large number of orders, but are unable to fill them, although offering the highest rates mentioned. The Cummer Lumber Co., Dexter Hunter and others all have plenty of business in sight, but owing to scarcity of tonnage have to decline orders in certain cases. The mills at this port and adjacent milling sections will naturally curtail their output under present state of the market, and when it is considered that there are from twenty-five to thirty mills in and around this city, such curtailment will prove disastrous to employes, throwing a number out of employment. The volume of business for the month of April, notwithstanding the difficulty of obtaining desirable tonnage, was heavier than March, the coastwise exports being as follows: Pine lumber, 11,666,000 feet; shingles, 2,505,000. Foreign exports were: Yellow pine, 567,557 feet, and shingles, 7000. Among the charters reported in New York last week are the following: Schooners Adele Ball, 401 tons, and Ella G. Ellis, 230 tons, Jacksonville to New York with lumber at \$7; schooner M. A. Achorn, 258 tons, Fernandina to New York with lumber at \$6.50, 40,000 feet a day.

Mobile.

[From our own Correspondent.]

Mobile, Ala., May 2.

The situation at this port in lumber and timber is feverish and unsettled under war conditions and the volume of business in lumber is exceedingly light. The coastwise business has fallen off owing to the scarcity of tonnage, owners not caring to take any risks of seizure. There has been some business during the past week in timber for foreign ports and the market is about steady. Sawn timber, when placed upon the market, will bring 9 to 9½ cents per cubic foot, 40-foot basis, and hewn timber is in good demand at 11 to 12½ cents per cubic foot, basis of 100 cubic feet, average B1 good. In hardwoods, oak timber is dull and nominal, and poplar is in limited demand at 11 to 12 cents per cubic foot. Ash of good quality, large girth, is quoted at 13 to 14 cents per cubic foot. Freight on timber have advanced and steamer rates to the United Kingdom and Continent are quoted at £6 per standard; sail rates 31s. per load for hewn and £5 10s. per standard for sawn. Lumber rates to the West Indies are unsettled and tonnage not offering. The shipments during the past week from this port were as follows: Ship Harvest Queen for Belfast, Ireland, with 7980 cubic feet of hewn timber, 90,634 cubic feet of sawn and 250,266 feet; ship Karoo for London, England, with 108,064 feet of sawn timber and 15,812 feet of lumber. The steamer Oron cleared for

Dieppe, France, with 1,101,891 feet of lumber, and the schooner Dyer for Ruatan, B. H., with 15,000 feet. The market at Pensacola is active, with a good volume of foreign trade in both lumber and timber, over 10,000,000 feet of lumber and timber having been shipped last week, 1,000,000 of which was by a British vessel for Rio Janeiro. The British steamer Nitocris, 1714 tons, was chartered last week in New York to load sawn timber at Pensacola for Rotterdam or London at 115s., June 15. The Norwegian steamer Alladin, 1987 tons, was chartered in New York today to load sawn timber at Pensacola for the United Kingdom or Continent at 117s. 6d., May.

Lumber Notes.

The saw-mill plant of E. E. West, of West Lake, Ga., was destroyed by fire last week. The loss is estimated at \$25,000, with \$10,000 insurance.

It is stated that work on the new saw-mill plant of the Nona Mills Co., of Beaumont, Texas, at Leesville, La., will commence in August or September next.

The Johnson City Manufacturing Co., of Johnson City, Tenn., is putting up a large saw mill for the purpose of manufacturing all kinds of hardwood lumber. The company will make a specialty of hemlock framing, etc.

The planing mill and lumber-yard of J. D. Jervis & Co., of Decatur, Ala., was totally destroyed by fire last week, entailing a loss of nearly \$20,000, with no insurance. This plant was said to be one of the largest and most complete in the State.

During the past week there was shipped from the port of Darien, Ga., coastwise and foreign, 2,588,625 feet of timber and lumber valued at \$27,016. The receipts for month of April were larger than usual, the total for the month being over 10,000,000 feet.

The president of the Rome Furniture Co., of Rome, Ga., is now in correspondence with a large English furniture house in regard to a contract for furniture to the amount of \$60,000. It is said that the contract is for oak and ash furniture, polished the natural color, and will likely be closed shortly.

T. J. Foler, of Crowley, La., closed a deal last week with the Abbott-Dunson Canal Co., Limited, the Roller Canal Co., Limited, and Ferre Canal Co., Limited, for over 5,000,000 feet of lumber to be used in the erection of their pumping plants. This is the largest sale of lumber ever made in Crowley at one time.

The shipments of wood products from the port of Savannah during the month of April aggregated 12,028,454 feet of lumber, 596,122 feet of crossties and 307,257 feet of cypress lumber. In the month of April, 1897, the total shipments amounted to 10,976,822 feet, of which there were 8,652,456 feet of lumber and 2,324,366 feet of crossties.

Among the shipments of wood products last week from Pensacola, Fla., the following were reported: To Genoa, 2,278,000 feet of timber and 860,000 feet of lumber; to Boulogne, 486,000 feet of lumber and 63,000 feet of timber; to Great Britain, 2,043,000 feet of lumber and 2,773,000 feet of timber, and to Rio Janeiro, 998,000 feet of lumber.

It is stated that the Southern Export Lumber Co., of Cleveland, O., which owns extensive tracts of timber land near Mobile, Ala., will shortly establish one of the largest hardwood-mill plants in the South near that city. It is the purpose of the company to use a number of portable mills on its hardwood timber tracts, that can be moved as the timber is cut. Plans for the enterprise are not

fully completed, but it is said that work will be well under way about the 1st of May.

The secretary of the Mechanics, Dealers and Lumbermen's Exchange of New Orleans reports the receipts of wood products in that city for the week ending April 29th as follows: Lumber, 1,121,000 feet; shingles, 139,000; oak staves, 86,597, and cypress staves, 22,000. The total receipts of lumber for the season amount to 53,129,150 feet, against 50,553,000 feet last year.

The lumber business at Chattanooga, Tenn., is reported better at present than at any time during the past five years. The demand is better both from local and distant points. All the mills are rushed with orders, and are working up to their full capacity. Stocks of logs are being rapidly reduced, and large receipts are expected on the June rise in the Tennessee river and tributaries.

The coastwise trade in lumber and other wood products is already beginning to show a decrease in the volume of business, and the coastwise chartering business is dull, with a light offering of desirable tonnage. Rates on lumber from Georgia and Florida ports usually show a decline at this season of the year, but during the last sixty days they have shown a decided advance. Yellow-pine shippers have great difficulty in securing desirable tonnage, and freight rates on all wood products are excessive. The following are the rates at which charters were closed in New York last week: On lumber, Fernandina to New York, \$6.75; Satilla to Philadelphia, \$6.50 and free wharfage; Savannah to Portland, Me., \$6; Jacksonville to New York, \$7; Wilmington, N. C., to Port Spain, \$8.

Important Enterprise in West Virginia

The Manufacturers' Record is informed that a company is to be organized to develop what is reported to be an extensive property in West Virginia, containing large deposits of limestone and clay of such a quality that a high grade of Portland cement can be manufactured from it. The Buckhorn Portland Cement Co., which is to be the title of the corporation, proposed to purchase a tract of 1000 acres of land located on the Baltimore & Ohio Railroad, near Rowlesburg. According to analyses made by expert chemists, the property contains not only the clay and limestone referred to, but beds of silica suitable for manufacturing glass and soap; also a deposit of bituminous coal. A quantity of cement has already been made from the material with entire success.

The company is to be capitalized at \$400,000, and it is probable that a plant will be erected which will produce at least 1000 barrels per day. As the consumption of this material is steadily and rapidly increasing, it is believed that the company will find an extensive market for its product. Among those interested are Messrs. John F. Stoer and Charles H. Worthman. The offices of the company are at Rowlesburg, W. Va., and in the Girard Building, Philadelphia, Pa.

An association has been formed at New Orleans which will act as an auxiliary to the board of health to assist in running the flushing pumps, so that the city may be flushed all summer, whether the city council acts or not in the matter.

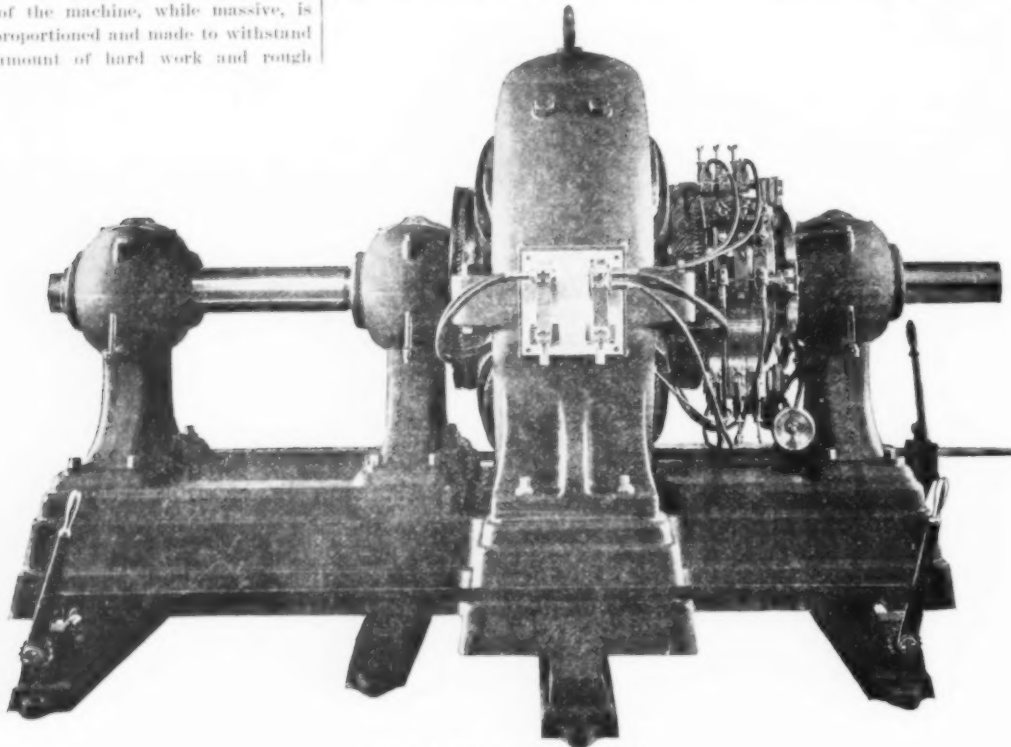
It was officially announced last week that the Port Royal (S. C.) dry-dock is now ready for any warship of the United States Navy.

More than \$14,000 have already been collected for the Missouri exhibit at the Omaha Exposition.

MECHANICAL.

New Design Belted Dynamo.

The 225-kilowatt generator illustrated is the latest design introduced by the Card Electric Co., of Mansfield, O. Every part of the machine, while massive, is well proportioned and made to withstand any amount of hard work and rough



NEW DESIGN BELTED DYNAMO.

usage. The armature has special features in the way of conveniences for ready inspection and repairs.

With the winding on this armature it is possible by unsoldering not to exceed twelve connections at the commutator to

movement of the screw returns all of the parts to their proper place. With heavy windings, a large commutator and improved brush-holders, this generator is specially fitted for any kind of heavy duty, and the company reports a large

of the screw and lever on the base frame the two supporting bearings and armature are forced rearward on the base until the armature body is in the place of the pulley and the commutator completely uncovered. In this position any of the field coils can be removed. A reverse

for a heavy power-feed clamp, something more powerful than usually found, and to meet this demand the Egan Company, of Cincinnati, O., has introduced a new machine, which is designated as "No. 4 Vertical Power-feed Door Clamp."

This machine is of extreme simplicity,

and substantial, the frames being held together by heavy girts, one at the top and two at the bottom. The screws operating the top jaw are of steel, are large in diameter, and work on ball bearings.

The manner in which the machine operates is as follows: The door is placed between the jaws and clamped endwise by the hand clamp. The top is then started down by the lever shown at the right side of the machine, and stops when it has reached the point to which it has been set by the collar on the rod at the front, or when a certain pressure, regulated by the small hand wheel at the top of the machine, is reached. By this means all doors, though they may vary by a half inch in width, are clamped with an equal pressure. Should it be necessary at any time to stop the machine at any point, the treadle at the base will throw it out of gear. The upper jaw in opening travels at three times the speed it closes with, and a collar on the rod at the front stops the jaw at any point at which it may be set.

Practical Brine-Pipe Covering.

Pipe covering for pipes conveying brine or return gas for refrigerating and ice-machine work has been a problem that has bothered many pipe coverers of the country.

In many instances annoyances are caused by the lack of proper pipe covering from the melting of ice which is accumulated on the pipe, caused by changes of temperature in the circulating brine, which may come from the temporary stopping of the refrigerating machine and cause the water to drop on the merchandise, flooring or machinery. This

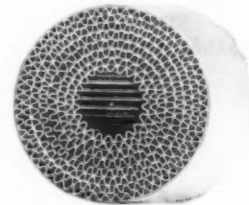


FIG. 1.

may cause more than annoyance, as it may result in loss.

An experiment was made at one of the large breweries in Brooklyn, N. Y., to obtain a covering for frozen pipe work, and a satisfactory result was made by making a covering composed of air cells and a covering that was airtight. There is no known covering which approaches the ideal non-conductor of heat radiation as a close air cell and a series of them, one overlapping the other, and will beyond question make a pipe insulator that may be used with perfect confidence, with one proviso, that being the material composing the air cells must be airtight. Should

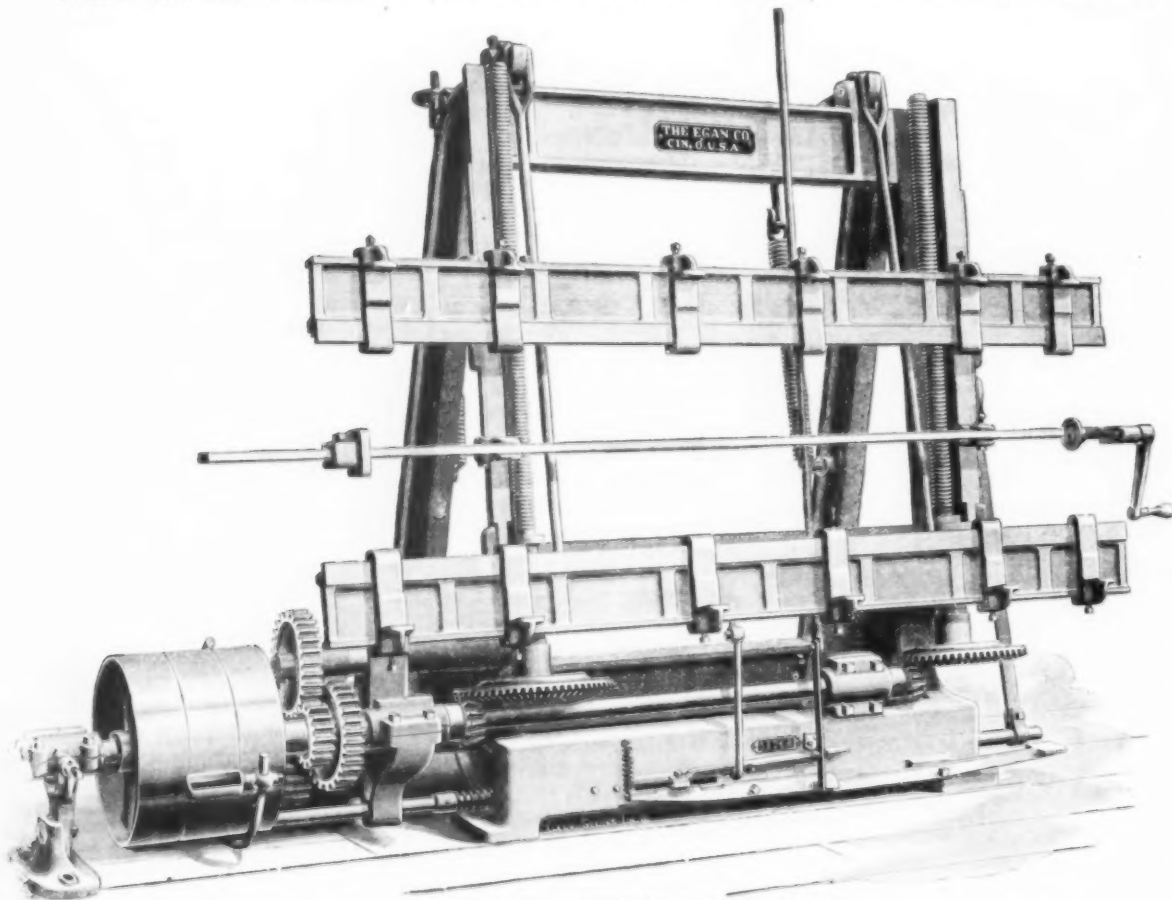


FIG. 2.

there be a leak in the insulation a small quantity of air would continually circulate, and the moisture carried by the warm air would remain as a frozen deposit on the surface of the pipe and continue to increase until it developed into something more serious.

Glast's patent air cell brine-pipe covering, which we illustrate, is a covering made especially for this class of work, and is a practical covering for this purpose, and one that the maker guarantees to last and prevent the formation of frost on the pipes.

It is constructed on scientific principles of water and frost-proof materials, forming divided air cells, as shown in the illustrations, and forming a perfect non-



NO. 4 VERTICAL POWER-FEED DOOR CLAMP.

remove any coil from it without disturbing any other coil in the body of the armature. The maker guarantees this feature.

The provisions for uncovering the armature are simple and effective. By means

number of recent sales which keeps it busy night and day.

Vertical Power-Feed Door Clamp.

In the manufacture of doors in the factories of the country a demand has arisen

either hard or soft wood, from twelve inches to four feet in width and up to eight feet in length; or, when using a special set of dogs, blinds down to six inches in width may be clamped.

In construction the machine is simple

conductor, and when properly applied to the pipes effectually prevents the air from reaching it, and thereby prevents all condensation.

Experts recommend it strongly in the manufacture of ice and refrigerating, as its use keeps the cooling element down to the proper temperature

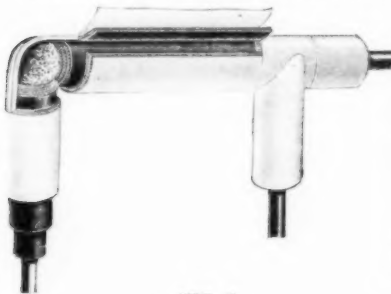


FIG. 3.

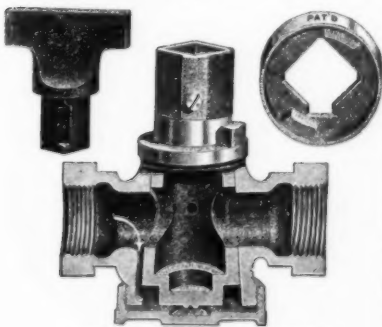
and avoids the necessity of forcing the machine to make up the loss that would result from having the pipes uncovered.

This covering will also prevent water-pipes from freezing, no matter how low the temperature.

Prices and samples can be had by addressing the New York Fire Proof Covering Co., of 26 Cortlandt street, New York city.

Curb Cock That Never Leaks.

We present a sectional view of the H. M. inverted-key curb cock, placed on the market by the H. Mueller Manufacturing Co., of Decatur, Ill. It will be seen that this cock differs from the ordinary curb cock inasmuch as the key is reversed, or, in other words, the large end of the plug is at the bottom. The key in the ordinary curb cock will oftentimes work very stiff, and in some cases become set, so that it becomes necessary to replace it before the water can be turned off or on, while with the inverted-key curb cock a slight downward pressure on the plug prevents any binding or sticking. The water enters the pressure side, going through the by-pass, as indicated by the arrow, and passes under the key. This pressure pushes the plug or key gently upward at all times, so there is no possibility of leakage under the highest pressure that can be



INVERTED KEY CURB COCK.

placed on it. These cocks are provided with the H. M. patent cap, same as used on the H. M. patent right and left hand interchangeable stop and waste cock, which is already favorably known to plumbers. This cap, with square, two inside lugs and lug on body of cock forms a strong and substantial check, and the operator when opening or closing knows at once when it is fully open or fully closed. Another highly important feature that this cap performs is in preventing dirt, grit, sand or any foreign matter from working its way into the key and causing leakage. It can be operated with a T-handle or square rod, and is made in different styles, the Minneapolis pattern included. These goods are made from a special composition of red brass metal, tested under 200 pounds pressure, with the guarantee that they will not leak or stick.

Art Glass and Kindred Decorations.

Painting on glass and mosaics in stained or colored glass have received for centuries the attention of artists and connoisseurs as a decorative art of a very high order.

As a rule persons who are about to build residences know little of architectural construction, and they therefore address themselves to such architects as they believe will combine their aesthetic ideas with a practical execution, and when stained glass is in consideration fewer persons still have a knowledge of what they need and require.

In this connection attention is called to the L. Grosse Art Glass Works, of Pittsburgh, Pa. (L. Grosse, proprietor), which makes a specialty of manufacturing art glass of the highest artistic merit and substantial workmanship, hardwood interiors, mural decorations, figure and memorial windows, etc.; also acting as agents for the papier mache and architectural carvings of Charles Ennuel, of Boston.

The illustrations shown here are reproductions of a figure window and examples of papier mache capitals such as the Grosse Art Glass Works supplies.

Parties engaged in the building trades or contemplating the erection of homes are invited to address the Grosse Company for catalogues and further information.

Bundy Steam and Oil Separator.

The special feature to which the manufacturer of this separator calls attention is the provision for removing the baffle

their flat fronts may face the incoming steam, as the front side alone has the capillary openings through which the oil and water may enter and go to the receiver below by gravitation.

The rear side of the Bundy separator baffle plate, a view of which is presented in Fig. 2, shows the vertical posts rounded for the easy passing of the steam. They are so constructed that the posts set staggered to each other; in other words, a

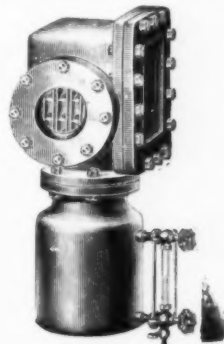


FIG. 1. BUNDY SEPARATOR.

post in one baffle sets directly back of a space in the plate in front of it, thereby causing the steam to pass through in a zigzag course.

The manufacturer, the A. A. Griffling Iron Co., of Jersey City, N. J., claims that this separator is particularly adapted for marine work where a side flange is practically a necessity.

Fig. 3 illustrates a Bundy separator arranged with an automatic discharge, by means of which the water and oil entering the receiver of the separator are auto-

controlled by a balance valve that neutralizes the pressure, and the seat of the valve is made of phosphor-bronze to prevent sticking. The initial working force

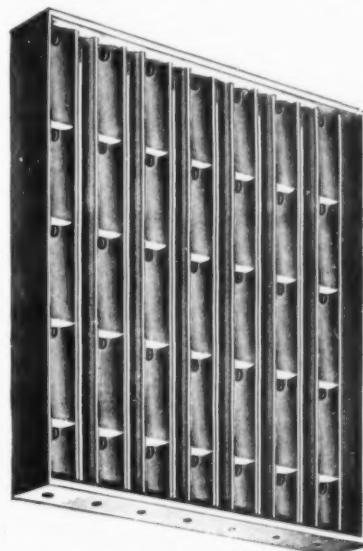


FIG. 2. BAFFLE PLATE BUNDY SEPARATOR.

is produced by a bucket sinker filled with water and a counter-balance weight, which force, however, is multiplied



FIG. 3. BUNDY AUTOMATIC DISCHARGE SEPARATOR.

twelvefold by virtue of a series of levers. When the water rises higher than a certain point the counter-balance becomes comparatively the heavier and opens the discharge valve. When the water is suffi-



FIGURE WINDOW AND PAPIER MACHE DECORATIONS.



plates at the side of the separator, a side flange being provided, as shown in Fig. 1, by which this is made possible. The separator may be put in so that the flange will be on either side, care being taken that the baffle plates are put in so that

automatically removed, thus obviating any danger of flooding and consequent accident.

By means of a series of levers the moving parts of the automatic discharger work positively and with abundant power for all steam pressures. The discharge is

ciently discharged the bucket sinker becomes the heavier and closes the discharge valve. Gravitation performs both functions, the discharge device being actuated by the different volumes of water displaced by each respectively. When the

water comes in sufficient volume there is a continuous discharge, otherwise it is intermittent. In any case, the water is discharged from the bottom of a deep-water seal, through which the steam cannot pass and be wasted. There are times when there is more work to be done by the separator, as in the morning, when the plant is first started, or when the fires are being forced, and if no automatic discharging separator is used, great watchfulness on the part of someone is imperative to see that the water or oil is allowed to leave the receiver before it is so full as to make trouble. The Bundy separator is not affected in its operation in the slightest degree until the receiver is entirely filled, after which, of course, the water and oil must pass through without being removed. Write for book.

Ice Manufacture and Refrigeration.

For several hundred years scientists made a study of the possibility of supplanting nature in the production of extreme cold and in the production of ice thereby. But it is only within the last past twenty-five years that the possibility

them of great value to ice manufacturers.

As the compression of gases causes heat, and their expansion causes cold, so may the production of ice be tersely and well explained to the casual reader. For instance, take a cubic foot of ammonia gas at one degree above zero (Fahrenheit) and compress it into the space of one cubic inch, the temperature will be raised to 1728 degrees (sufficient to melt cast iron), and if the cubic inch of gas be suddenly cooled to one degree above zero, and at the same time be allowed to suddenly expand to one cubic foot, the result will be that an enormous quantity of heat will be extracted from the walls of the cylinder in which the compression occurs, and if that cylinder has been placed in a vessel containing water it is evident that the result will be the freezing of the water into a solid block of ice.

In this country there have been a number of most extensive and successful plants established for the construction of machinery for the manufacture of ice, among the most prominent of them being the Messrs. John Featherstone's Sons, of Chicago.

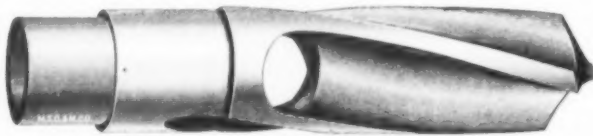


FIG. 1.

Hollow Drills.

of so doing has been clearly demonstrated from a commercial point of view. Now we are enabled by the use of machinery to manufacture ice by artificial refrigeration, the quality of the product being absolutely pure. Cold is a mere relative term, meaning the absence of heat in a greater or less degree, so when the weather is cold there is merely less of the heat of the sun in circulation, the colder it being the less of the sun's heat being present. Chief among the various substances that have been utilized in the processes of producing artificial cold are

Many varieties of hollow drills for drilling deep or long holes are manufactured by the Morse Twist Drill & Machine Co., of New Bedford, Mass. Several of them are shown herewith and their use described.

The drills shown in Fig. 1 have a hole lengthways through the shank connecting with the grooves of the drill. The shank through the shank connecting with the oil tubes of the drill. The oil is forced through a flexible tube into the spindle



FIG. 2.

ether, carbonic acid, sulphurous oxide, nitrous oxide, methylamine and chymogene; common air has also been so used. But all of these have been abandoned because of their excessive cost, which prevented artificial refrigeration from being practiced commercially with profit.

The one substance that has been found to be cheap enough to allow of its use in the manufacture of artificial cold and the making of ice is an alkali known as ammonia. This cold-producing agent is now generally employed and gives thor-

ough satisfaction. Ammonia used in ice manufacturing is in liquid form, technically known as anhydrous ammonia, that is to say liquid ammonia that is free from water. The manufacture of this ammonia is attended with much difficulty and the greatest care has to be exerted in order to insure the elimination of the many impurities (including water) which are found in it. The rapidity with which substances volatilize when exposed to the atmosphere in an open vessel are the virtues which ammonia and other cold-producing agents possess that have made

oil from the pump is so conveyed to the point of the drill. This drill in use may or may not revolve.

Straight-shank drills, with oil tubes inserted, as shown in Fig. 3, are also made, which holds the drill, stuffing boxes connecting the tube with the spindle. The but in this case it is not intended that the drill shall revolve, the work revolving instead. The oil is forced through a flexible tube to the drill, the tube being connected to the drill by means of a coupling. Drills of special lengths, with oil tubes, are also furnished as desired.



FIG. 3.

ough satisfaction. Ammonia used in ice manufacturing is in liquid form, technically known as anhydrous ammonia, that is to say liquid ammonia that is free from water. The manufacture of this ammonia is attended with much difficulty and the greatest care has to be exerted in order to insure the elimination of the many impurities (including water) which are found in it. The rapidity with which substances volatilize when exposed to the atmosphere in an open vessel are the virtues which ammonia and other cold-producing agents possess that have made

oil from the pump is so conveyed to the point of the drill. This drill in use may or may not revolve.

Straight-shank drills, with oil tubes inserted, as shown in Fig. 3, are also made, which holds the drill, stuffing boxes connecting the tube with the spindle. The but in this case it is not intended that the drill shall revolve, the work revolving instead. The oil is forced through a flexible tube to the drill, the tube being connected to the drill by means of a coupling. Drills of special lengths, with oil tubes, are also furnished as desired.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record.

Baltimore, Md., May 5.

In the local phosphate market the tone is firm, with a moderate amount of trade in progress. Large sales of Tennessee rock have been reported during the past week by local brokers and values show a hardening tendency. The movement in coastwise business from South Carolina and Florida ports has been somewhat checked, owing to the scarcity of vessels and sharp advance in rates. At all points of production the movement is unchanged and stocks are fully equal to the demand at the moment. There are few desirable vessels offering to load rock at the ports and during the week only the following charters were reported in New York: British steamer Rantry, 1542 tons, from Savannah to Stettin with phosphate rock at 15s., April 30; a schooner, 714 tons, from Charlotte Harbor to Baltimore with phosphate rock at \$1.80; schooner Anna L. Mulford, 518 tons, from Ashley River to Baltimore with phosphate rock at \$2.50, coal out on private terms, and British bark Charles Cotesworth, 1031 tons, from west coast South America to Hampton Roads for orders with nitrate at 25s., June-July.

Fertilizer Ingredients.

The market is firm, with an active demand for ammoniates, and stocks in the West very much reduced. Of the general market Messrs. Thomas H. White & Co., in their circular for April, say: "The demand for ammoniates during the past thirty days has been very active and prices have not only been well maintained, but actual sales of tankage show a slight advance. There has been an especially large movement in all kinds of materials during the past week, owing to anxiety of buyers and sellers alike to get advantage of the present low rates, with the result that stocks in the West are pretty well cleaned up." In the local market there is a good inquiry from Eastern sources and also a fair Southern inquiry. There is a strong advance in nitrate of soda, which closes firm for both spot and future business.

The following table represents the prices current at this date:

Sulphate of ammonia (gas)	\$2 45 @	—
Nitrate of soda	3 00 @	3 10
Blood	1 72 @	—
Hoof meal	1 05 @	—
Azoline (dried)	1 77 @	—
Azoline (pork)	1 77 @	—
Tankage (concentrated)	1 67 @	—
Tankage (9 and 20)	1 80 @	10
Tankage (7 and 30)	15 00 @	15 50
Fish (dry)	20 00 @	—
Fish (acid)	12 00 @	—

Phosphate and Fertilizer Notes.

The following shipments of phosphate rock were reported last week from the port of Charleston, S. C.: Schooner David Baird for Philadelphia with 953 tons; schooner Carrie L. Tyler for Norfolk with 850 tons, and schooner Nellie W. Howlett for Baltimore with 850 tons. The total coastwise shipments from Charleston from September 1, 1897, to April 29, inclusive, amounted to 70,544 tons, against 63,339 tons for the corresponding period last year.

Iron Markets.

Cincinnati, O., April 30.

The iron market during the past week has been of an especially interesting nature on account of several large deals which are yet pending. Smaller consumers are buying as their wants require for early delivery, but some of the largest melters are testing the market for round lots, scattered delivery through six months or more. If the usual course of the market holds good in this case the rank and file of trade will follow the

leaders and there will be a heavy tonnage booked during the coming month. A local consumer is reported to have bought 25,000 tons No. 4 foundry and gray forge. Most of the Southern furnaces are in good condition now so far as orders and stocks on hand are concerned, and if the negotiations in progress come to a conclusion in the way to sales, the Southern producers will be well sold ahead. There seems to be no probability of any increase of production in Alabama. Two furnaces have recently gone out of blast and only one started.

There is also a fair demand for Lake Superior charcoal iron, and because of scarcity of old wheels the call for high grades has been very heavy and the L. S. C. C. furnaces are short of those grades.

A few consumers of iron claim that contracts have fallen off in a marked degree during the past three weeks, but in the aggregate we think consumption is holding up, and that a further decrease in stocks will be shown at the end of the month.

We quote for cash f. o. b. Cincinnati:

Southern coke, No. 1 foundry	\$9 75 @	\$10 00
Southern coke, No. 2 foundry	9 50 @	9 75
Southern coke, No. 3 foundry	9 25 @	9 45
Southern coke, No. 4 & G. F.	8 75 @	9 00
Southern coke, mottled	8 75 @	9 00
Southern coke, No. 1 soft	9 75 @	10 00
Southern coke, No. 2 soft	9 50 @	9 75
Belfont coke, No. 1, Lake Sup.	11 00 @	11 50
Belfont coke, No. 2, Lake Sup.	10 50 @	10 75
Hanging Rock charcoal, No. 1	14 50 @	15 50
Tennessee charcoal, No. 1	12 50 @	13 00
Jackson Co. silvery No. 1	12 00 @	12 50
Standard Georgia car-wheel	14 25 @	15 00

Philadelphia, Pa., April 30.

Strange to say the war so far has not caused any slump in prices and the demand for iron due on old contracts does not slacken. New orders are being booked daily, and, if anything, there is a firmer feeling than there was a week ago. This city is American to the core, and so patriotic, so sanguine in regard to the outcome, that it is natural for business men here to do their best, leaving the rest, feeling sure that war alone should not cause undue apprehension.

We quote for cash f. o. b. Philadelphia docks:

No. 1 X standard Alabama	— @	\$11 00
No. 2 X standard Alabama	— @	10 55
No. 1 X lake ore coke iron	— @	11 75
No. 2 X lake ore coke iron	— @	11 25
Lake Superior charcoal	— @	13 25
Standard Georgia C. C.	— @	15 50

ROGERS, BROWN & CO.

Here Is Common Sense.

If business becomes demoralized it is ourselves largely and not the conditions which are to blame. Let us keep this in mind and remember that the duty of everyone is to work. In that way can each best serve his country.—Nashville American.

This war will not result in any invasion of American soil and our interior business affairs should progress without any severe disturbance. The South is nearer the storm center than any other part of the country, but even the South should make an effort to maintain perfect business equilibrium. Its coast cities will no doubt be protected and foreign bottoms will enter its ports to carry on all maritime business. It may be said, then, that in the South there is no need of a scare, and there is the greatest need of that conservatism which has so far characterized the business affairs of the entire country.—Columbus (Ga.) Enquirer-Sun.

The United States government, through Department Quartermaster Major Pullman, has contracted with the Mobile Coal Co., of Mobile, to deliver to government vessels that may call at Mobile such coal as may be required up to 5000 tons per day. The coal company has the necessary facilities, and has given a bond of \$10,000 to carry out the contract.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted." In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

It often occurs that the organization of a new company in any town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." The Manufacturers' Record reports the first organization of all companies, and our readers, in seeking to get into communication with them, should be very careful in deciding how to address them, and even then they must expect the return of some letters, because of the lack of knowledge on the part of postmasters of all new companies. Criticisms and complaints are invited, as they will the better enable us to guard against errors.

ALABAMA.

Athens—Corn and Flour Mill.—C. E. Frost and T. M. Hobbs contemplate the erection of a corn and flour mill.

Birmingham—Iron Furnace.—T. J. Cornwall has purchased the Mary Pratt iron furnace for \$25,000.

Birmingham—Powder Mill.—The Birmingham Powder Co. has been incorporated, capital \$100,000, with W. B. Archibald, president, and A. Green, secretary and treasurer; company operates large powder mill at Boyles, near Birmingham.

Geneva—Grist Mill.—H. Wilson has contract for erection of grist mill.

Mobile—Lumber Mills.—The Southern Export Lumber Co., of Cleveland, O., Frank H. Briggs, general manager, will establish and operate in Mobile large plants for the manufacture of hardwood lumber, etc.

Tuscaloosa—Ice Factory.—The Tuscaloosa Electric Light Co. is preparing to put in an ice machine.

Tuscaloosa—Cotton Mill.—The proposed cotton-wadding mill, recently noted, will be established; company is now organizing, D. J. Griffin, W. B. Oliver, Victor Friedman, Mims Jemison and Francis Brady being interested; fifty roller cards, 100-horse-power engine and 125-horse-power boiler will be installed. Address D. J. Griffin.*

ARKANSAS.

Arkadelphia—Mining, etc.—The Ouachita Mining, Mining & Investment Co. has been incorporated, with capital stock of \$1,500,000, by J. M. Hensley, E. T. Hensley, J. R. Boddie and J. H. Locke.

Conway—Flour Mill.—The Conway Milling Co. will erect the 50-barrel flour mill recently reported; machinery for same has been purchased and contract for erection of building let to J. D. Slade & Bro.

FLORIDA.

Altia—Phosphate Mines.—Incorporated: The Clark Phosphate Co., with a capital stock of \$25,000, for buying, selling and mining phosphate rock and material, leasing mining properties and rights, etc. The in-

corporators are R. S. Clark, president; H. A. Ford, treasurer, and E. Hiller, director. Address the president.

Dunnellon—Phosphate Plants.—The Dunnellon Phosphate Co. (of Rockwell, Fla.), referred to last week, is building two phosphate plants, one to cost \$10,000 and the other \$15,000, employing together 135 men.

GEORGIA.

Cedartown—Cotton Mill.—The proposed new mill mentioned last week will be built by the Paragon Mills, organized for the purpose; equipment to be 7000 to 10,000 spindles, for producing hosiery and underwear yarns; M. O. Berry, president, and A. W. Birkbeck, secretary-treasurer. Address the secretary.

Cedartown—Cotton Mill.—Application has been made for the incorporation of the Paragon Mills, with capital stock of \$50,000 and privilege of increasing to \$300,000, and purpose to manufacture cotton goods, etc. The company has organized by electing M. O. Berry, of Columbus, Ga., president, and A. W. Birkbeck, of Cedartown, secretary-treasurer, for the immediate erection of a mill to have main building 110x250 feet, equipped with 7000 to 10,000 spindles, for producing yarns for hosiery and underwear; weekly capacity to be 50,000 pounds of yarns, and 250 hands to be employed. Address the secretary for further information.

Columbus—Water-works Improvements.—The Columbus Water Works Co. will make the proposed improvements recently referred to. The company will lay 30,000 feet of mains in the annexed portion of the city and will require a pair of pumps to keep filled the new standpipe which it recently built. The power to be used will be either water or electricity, but is not contracted for.*

Dalton—Refrigerating Plant.—Davis & Sons, referred to last week, contemplate adding a four or five-ton refrigerating plant to their factory.

Leah—Flour Mill.—Price & McDonald will install a new water-wheel and other machinery in their flour mill.

Leathersville—Flour Mill and Gin.—D. J. E. Calvin contemplates erecting a water mill and gin.

Macon—Paper Mill.—Henry Horne has nearly completed arrangements that ensure the erection of a large paper mill.

Macon—F. L. Mallory and W. A. Taylor have incorporated the Mallory & Taylor Iron Works, with capital stock of \$25,000, for the operation of iron works, machine shops, etc.

Macon—Mill-supply Company.—The Mallory Mill Supply Co. has been incorporated, with capital stock of \$25,000, for the purpose of dealing in general machinery and mill supplies, by L. H. Wood, W. A. Taylor and C. S. Roper.

Macon—Heating and Lighting Company.—Incorporated: The Kitson Hydro-Carbon Heating & Incandescent Lighting Co., capital stock \$100,000, by Ben C. Smith, Clem Phillips and Arthur P. Findlay, for the manufacture and introduction of the Kitson system of hydro-carbon and incandescent lighting, etc.

Marietta—Knitting Mill.—The Marietta Knitting Co. has increased its capital stock from \$7500 to \$18,000, and will double its present plant. A 35-foot addition will be erected to main building, fourteen knitting machines, finishing machinery, dryers, etc., will be installed.*

Monticello—Cotton Mill.—The projected cotton-mill company may materialize when the Spanish-American war is ended. A. H. Jordan is interested.

Newnan—Cotton Mill.—There is some talk of the erection of a 10,000-spindle cotton mill; R. D. Cole, Sr., P. F. Cuttino, E. S. Buchanan and others are interested.

Savannah—Mercantile.—James M. Dixon and Merritt W. Dixon have incorporated the C. H. Dixon Co., with capital stock of \$25,000, to deal in mercantile supplies, etc.

KENTUCKY.

Clinton—Water Works.—The Clinton Water & Light Co. has arranged to ask for bids on the construction of its water works proposed. Plant will include 500,000-gallon pump, 60,000-gallon reservoir, etc.; R. L. Johnson, president.*

Cloverport—Blacksmith Shop.—James A. Tucker has established a blacksmith shop.

Franklin—Flour and Corn Mill.—Clark &

Clark, Glasgow, Ky., have purchased site in Franklin and will erect a flour mill of fifty to sixty barrels capacity daily and put in corn mill.

Louisville—Horseshoe-nail Factory.—It is proposed that the Superior Horse Nail Co., of Kankakee, Ill., remove its factory to Louisville.

Louisville—Grain Elevator.—Ballard & Ballard have permit to erect the grain elevator lately noted; will cost \$10,000 and have capacity of 115,000 bushels.

Louisville—Steel and Wire Works.—The Board of Trade is negotiating for the establishment of branch works of the Consolidated Steel & Wire Co., of Pittsburg, Pa., to employ 2000 men. Negotiations are also in progress with the American Queensware Co., of East Liverpool, O., for the establishment of a pottery.

Madisonville—Ice Factory.—E. C. Anderson & Co., of Hopkinsville, Ky., will erect an ice factory in Madisonville.

Paducah—Manufacturing.—The Hecla Manufacturing Co., of Bloomington, Ill., has addressed the mayor, making a proposition to remove its factory to Paducah.

Saxton—Coal Mining.—Isaac Bradshaw and Terry McGlohon have organized the Enterprise Blue Gem Coal Co. for mining purposes.

LOUISIANA.

New Orleans—Ice Factory and Cold-storage Plant.—The Central Ice & Cold Storage Co., Limited, has been incorporated, with capital stock of \$50,000, to manufacture ice and conduct cold-storage plants, etc., by Charles A. Zuker, George W. Brackenridge and W. H. McGraw.

New Orleans—Cotton Compress.—Chartered: The Terrell Compress Co., capital stock \$50,000, by William T. Hardie, William F. Hardie and Robert T. Hardie.

New Orleans—Sugar-planting Company, etc.—The Moss Grove Planting Co., Limited, has been incorporated, with capital stock of \$50,000, for planting sugar-cane, etc., by Hartwig Moss, Mrs. Rosa R. Moss, Will Moss and Max Moss.

New Orleans—Tobacco Company.—Incorporated: The S. Hensheln Bros. & Co. Cut Tobacco Works Co., Limited, capital stock \$100,000, with Frank I. Hensheln, president, and Charles Hensheln, vice-president, to deal in and manufacture tobacco, etc.

MARYLAND.

Baltimore—Beehive Power Plant.—Richard Capron contemplates remodeling the North Avenue Ice Skating Rink into a beehive power plant for the accommodation of small manufacturing industries.

Double Pipe Creek—Grain Elevator and Warehouse.—C. B. Anders, of Union Bridge, Md., will rebuild his burned grain elevator and warehouse at Union Bridge.*

Hayre de Grace—Shirt Factory.—The Susquehanna Shirt Co. has been incorporated, with capital stock of \$10,000, by J. Miller Thomas, of Pennsylvania; E. C. Corthell, of Hayre de Grace, and others, for the manufacture of shirts, overalls, etc.

Hyattsville—Water Works and Sewers.—The municipal election on \$25,000 bonds for water works and sewers resulted adversely.

Salisbury—Telephone Line.—It is proposed to organize a company to construct telephone line; John N. Pinsley is interested.

MISSISSIPPI.

Carrollton—Water Works.—It is proposed to construct water works to be supplied by artesian well. Address for information W. H. Hafun, mayor.

Crystal Springs—Lighting and Water Plants.—The aldermen are now negotiating the sale of bonds for the construction of the proposed water works and lighting plant; W. G. Kirkpatrick, Jackson, Miss., is preparing the plans for the plants. Address the mayor.

MISSOURI.

Carthage—Harness Company.—Incorporated: The C. E. Turner Harness & Carriage Co., capital stock \$21,000, by Adah H. Turner, secretary, and others.

Harnersville—Stove Company.—Incorporated: The Langdon Stove Co., capital stock \$10,000, by A. G. Langdon, J. H. Dunmill, A. Hass and W. M. Cates.

Joplin—Mining Plant.—The Red Rooster Mining Co. contemplates rebuilding its

burned \$15,000 mining plant. Address H. C. Begole, Belleville, Ill.

Joplin—Lead and Zinc Company.—Incorporated: The Phoenix-Vernon Lead & Zinc Co., capital \$350,000, by A. F. Dexter, S. F. Norton, Thomas Steins and others.

Kansas City—Lumber Company.—Incorporated: The Salline River Lumber Co., capital stock \$50,000, by C. J. Couder, H. C. Moore, William L. Stocking and others.

Kansas City—Gold Mining.—The Liberty Bell Gold Mining Co. has been incorporated, with capital stock of \$600,000, by Arthur Winslow, C. A. Braley, J. M. Mason and others.

Neosho—Flour Mill.—J. B. Hatler & Co. have contracted for the doubling of their flour mill near Neosho to 100 barrels capacity daily.

St. Louis—Printing Plant.—The Great Western Printing Co. will rebuild at once its extensive printing plant which was burned last week.

St. Louis—Bakery.—Incorporated: The Heinze-Platt Bakery Co., capital stock \$20,000, by Fred Heinze, A. J. Platt and C. B. Stark.

Trenton—Gas Company.—Incorporated: The Trenton Gas Light Co., capital stock \$50,000, by M. S. Cartar, H. M. Beardsley, James C. Reed and others.

NORTH CAROLINA.

Chadbourn—Saw Mill.—Homewood Farm Association will probably erect a saw mill.*

Fayetteville—Packing-house.—Newton H. Smith expects to pack peaches and tomatoes.*

Gastonia—Cotton Mill.—The Modena Cotton Mills contemplates the erection of a mill for the production of yarns.

Marion—Oil Mill.—C. A. and Frank Bob will establish a birch-oil distillery.

North Carolina—Distillery.—It is reported that James T. Tyndall, of New York city address care of George W. Lederer, is organizing a company to erect a distillery in North Carolina.

Norwood—Cotton Mill.—The Norwood Cotton Manufacturing Co., reported last week as fully organized, will erect, as was stated, a 5000-spindle mill at once and will use twistors. No machinery has been purchased as yet. J. A. Tyson, secretary, can be addressed.*

Stanly County, etc.—Extensive Water-power Developments.—It is announced that plans have been formulated for the thorough development of the water-power of the Yadkin river in Stanly and Montgomery counties, twenty-six miles from Salisbury. It is stated that a company has been organized for the purpose, with a capital stock of \$1,000,000, and that application for a charter will be applied for in the near future. Pennsylvania capitalists are interested. The power is to be transmitted by electricity to manufacturing plants of all kinds. F. B. Arendale, of Raleigh, N. C., is interested in the project, and telegraphs the Manufacturers' Record that power at Yadkin Falls has been bought with a view of development, but that plans for actual work have not yet been fully matured.

SOUTH CAROLINA.

Dillon—Saw Mill.—W. L. and Charles Rankin have established a saw mill to operate as the Latta Lumber Co.

Fort Mill—Cotton Mill.—The Millfort Mill Co. will rebuild the portion of its mill recently burned. Lappers, carders and drawing will be installed; W. A. Watson, president.*

Modoc—Flour Mill.—Parks & Stone will install a roller-process flour mill.

Pelham—Cotton Mill.—The Pelham Mills is enlarging its plant; is installing a 600-horse-power engine and 1000 spindles, and will put in more machinery in paper-box department.

Rock Hill—Water Works.—The city proposes to grant franchise for the construction of water works, and is now asking proposals; R. Lee Lerr, Fred Mobley and J. N. McElwee, commission.*

Sumter—Electric-light Plant.—The Sumter Ice Manufacturing Co. contemplates the erection of an electric-light plant, incandescent and arc.*

TENNESSEE.

Cleveland—Chair Factory.—The Cleveland Manufacturing Co. will erect additional

buildings to enlarge its factory and put in new machinery.

Gallatin—Water Works.—The city will call an election for May 14 to vote on issuing bonds to amount of \$35,000 for the construction of the proposed water works recently mentioned.

Garbers—Flour Mill.—Henry Hoss has purchased and will remodel the Garber Bros. flour mill.

Hossville—Flour Mill.—Henry Miller will install rolls in his flour mill.

Jackson—Ice Factory.—It is reported that R. Lucas (now of St. Louis, Mo.) will locate in Jackson and erect an ice factory.

Johnson City—Woodworking Factory.—Joseph A. Wilson & Co. contemplate putting in machinery for the manufacture of shuttle blocks and baseball bats.*

Johnson City—Saw Mill.—The Johnson City Manufacturing Co. has been organized to operate the saw mill now being put in by Vilas & Son.

Jonesboro—Flour Mill.—R. Wells will build a flour mill.

Knoxville—Marble Quarries.—The Ross Marble Co. has been incorporated to continue the operation of marble quarries; incorporators, John M. Ross, D. L. Ross, E. W. Eaton, F. S. Mead and James Maynard.

Knoxville—Tannery.—Hans Rees's Sons, of New York city, have made a proposition for the establishment of a branch tannery in Knoxville; a plant employing 150 men and costing about \$40,000 is proposed. Address Hans Rees's Sons, care of Sexton & Hogan, Knoxville.

Mount Airy—Flour Mill.—W. H. Mansfield, of Dunlap, Tenn., contemplates erecting a flour mill in Mount Airy.

Winchester—Water Works.—The construction of water works is talked of and G. G. Hall and F. E. Pittenger are said to be interested.

TEXAS.

Austin—Cannery.—The Austin Canning Co., capital stock \$8000, has been incorporated by George A. Hill, Carl F. Drake, S. C. Granberry, F. W. Hill and John Orr, to establish the cannery noted recently.

Corpus—Oil Company.—Incorporated: The International Oil & Mineral Co., capital stock \$20,000, by B. Q. Ward, John T. Boyle and J. E. Holt.

El Paso—Irrigation Company.—Incorporated: The Franklin Irrigation Co., capital stock \$50,000, by John Sumnerfield, Louis W. Evans and J. M. Marquez.

El Paso—Copper Mines.—A \$100,000 stock company has been organized for the purpose of developing copper mines located about 115 miles southeast of El Paso. Only development work will be done for the present, and later on a smelter and other machinery may be installed. For further information address W. F. Cummins, 631 Ross avenue, Dallas, Texas.

Greenville—Electrical Plant.—D. M. Robinson and D. J. Byrd have franchise for an electric fan system.

Houston—Barrel Factory.—The Business League is negotiating for the establishment of a barrel and hoop factory.

Iowa Park—Implement Company.—The Iowa Park Implement Co., capital stock \$5000, has been incorporated by D. C. Kolp, Sr., E. P. Kolp and D. C. Kolp, Jr.

Seils—Educational.—Incorporated: The North Texas Business College and School of Shortland, capital stock \$1000, by T. A. Jones, W. B. Bell and W. E. Whittenberg.

Sour Lake—Oil Refinery.—The Gulf Coast Refining Co. is building a refinery, as stated last week; the product will be lubricating oils entirely; capacity 150 barrels daily; C. M. Rice, manager.

Willis—Mercantile.—The Carson-Morris Co., capital stock \$25,000, has been incorporated by A. W. Morris, A. M. Carson and J. W. Tomlinson.

Winnboro—Saw Mill.—The W. G. Ragley Lumber Co. will rebuild at once its saw mill that was burned recently; contract for the machinery has been placed.

VIRGINIA.

Falls Church—Brush and Broom Factory.—The National Brush & Broom Co., incorporated last week, has its factory in operation now and contemplates some additional machinery and other improvements; C. H. Livingston, president; S. B. Elkins, Jr., vice-president; E. H. McDermot, secretary, and R. V. Rusk, treasurer; offices in Elkins, W. Va., and Washington, D. C. (503 D street N. W.)*

Newport News—Pier.—The Old Dominion Land Co. has let contract to White & Brahmans for the construction of a pier 900 feet

long, 50 feet wide, for distance of 650 feet, and then gradually widening for 100 feet until it reaches 100 feet; remaining 250 feet will be 100 feet wide; outer end to have warehouse 50x90 feet; pier to cost about \$30,000.

Newport News—Weather-strip Factory.—E. T. Moss will establish a manufactory for the production of a metallic weather strip patented by A. H. Cole, of Elbridge, N. Y.

Newport News—Liquor Company.—Incorporated: The Newport News Wine & Liquor Co., capital stock \$25,000, with A. G. Tolker, secretary.

Norfolk—Sewerage and Streets.—The city has ordered an election for May 26 to vote on issuance of \$150,000 in bonds for sewerage and street purposes to be expended in Brambleton ward; H. S. Herman, city treasurer.

Richmond—Stockyards, etc.—Union stockyards, hotel, offices, etc., will be erected by the cattle brokers of the city; Carl Rehrmann is preparing plans for the plant.

Staunton—Stove Company.—Chartered: The W. J. Loth Stove Co., with a capital of \$25,000, and W. J. Loth, president; F. Percy Loth, secretary and treasurer, and W. J. Loth, F. Percy Loth and F. H. Loth, directors; home office, Waynesboro, Pa.

Wytheville—Iron Mines.—D. S. Forney has commenced preliminary developments of iron ore property on Reed Island creek.

WEST VIRGINIA.

Martinsburg—Electric Plant.—The Martinsburg Electric Co. will expend \$1200 for new dynamos and engines.

Rowlesburg—Portland Cement Works.—The Buckhorn Portland Cement Co. will be incorporated for the purpose of buying a 1000-acre tract of land which contains all the necessary material for the manufacture of Portland cement, and for the purchase of this property and the erection of the cement works proposed about \$250,000 will be expended; plant to have daily capacity of 1000 barrels; capital stock to be \$400,000. Those interested in the enterprise include John F. Storer and Charles H. Worthman, of the West Virginia Company, Girard Building, Philadelphia, Pa., and Rowlesburg, W. Va., and they can be addressed for further information.

BURNED.

Augusta, Ga.—C. A. Doolittle's warehouse. Augusta, Ga.—Railroad elevator of the Georgia Railroad, Elevator & Warehouse Co.; loss \$200,000.

Baltimore, Md.—Chr. Lipps & Sons' soap factory; loss \$30,000; damaged.

Crockett, Texas.—John Monk's saw mill near Crockett; loss \$1000.

Decatur, Ala.—A. D. Jervis's saw mill.

Decatur, Ala.—J. D. Jervis & Co.'s planing mills; loss \$20,000.

Gumberry, N. C.—E. Kell's saw mill; loss \$5000.

Helena, Ark.—W. D. Reeves's saw mill; loss \$10,000.

Micanopy, Fla.—D. W. Tomkins & Co.'s moss factory.

Warren, Ark.—Lowry & Taylor's saw mill; loss \$1000.

West Lake, Ga.—Col. W. S. West's saw mill.

BUILDING NOTES.

Alexandria, La.—Residence.—A. Albert will erect \$4000 residence; plans on hand.

Asheville, N. C.—Residence.—C. E. Cooley will erect residence to cost \$2800 after plans by George F. Barber & Co., Knoxville, Tenn.

Atlanta, Ga.—Orphanage.—B. C. Brooks will rebuild the burned orphanage conducted by him.

Augusta, Ga.—Residence.—Charles E. Platt will erect residence to cost \$2500 after plans by George F. Barber & Co., Knoxville, Tenn.

Augusta, Ga.—Dwellings.—Bids will be received until May 7 for the erection of forty dwellings for J. B. White after plans and specifications now on file with L. F. Goodrich, architect.

Barnesville, Ga.—Church.—Erection of church building contemplated. Address Dr. Rolfe Hunt.

Cave Spring, Ga.—Hotel.—Dr. J. C. Watts will erect a three-story frame hotel building, as reported last week; plans and specifications by J. G. Barnwell, of Atlanta. Bids are solicited for construction of the building.

Centerville, Ala.—Bank Building.—Sealed

bids will be received by the Bibb County Banking & Trust Co. until May 19 for the erection of a three-story brick bank building. Plans and specifications may be seen at office of Charles Wheelock & Son, Birmingham, Ala.

Charlotte, N. C.—Business Block.—C. C. Hook is preparing plans and specifications for a business block to be built on East Trade street.

Clarksville, Texas—Residences.—G. Hocker and J. E. Barry will erect residences, the former to cost \$3850 and the latter \$2600; plans on hand.

Columbus, Ga.—School.—Barlow Bros. will erect a school at cost of about \$16,000.

Demopolis, Ala.—Residence.—George F. Barber & Co., Knoxville, Tenn., furnished plans for \$4000 residence for H. B. Pake.

Fort Worth, Texas—Church.—Third Christian Church will erect a new structure; Rev. Homer T. Wilson, pastor.

Glenn Springs, S. C.—Residence.—Mrs. D. McG. Buck will erect \$3500 residence; plans by George F. Barber & Co., Knoxville, Tenn.

Hagerstown, Md.—Theater.—It is said a \$30,000 company is being organized to remodel a building into a theater. Site is to be purchased from Mrs. Wm. T. Hamilton.

Honey Grove, Texas—Residence.—T. F. Williamson will erect \$4500 residence; plans now ready.

Jackson, Miss.—Opera-house.—The Auditorium Association has chosen site for its proposed building.

Kingsston, Tenn.—Residence.—S. J. De Armond has plans for \$4000 residence.

Knoxville, Tenn.—Asylum Addition.—Contract for addition to Lyons View Asylum has been awarded to J. D. Hunt, of Chattanooga, Tenn., at \$19,300.

Lancaster, S. C.—Dwelling.—Mrs. L. C. Payson will erect \$3800 residence after plans now ready.

Louisville, Ky.—Dwellings.—M. L. Wilson has prepared plans for a \$5000 residence for N. G. Wetterer; H. P. McDonald has made plans for \$7500 residence for M. N. Watts.

Magnolia, Miss.—George F. Barber & Co., Knoxville, Tenn., have prepared plans for \$4850 residence for T. B. Lampton.

Marianna, Fla.—Reformatory Buildings.—Contract has been awarded to the S. S. Leonard Co., of Jacksonville, at \$13,000 for the erection of reformatory buildings near Marianna.

New Orleans, La.—Dwellings.—Permits granted for \$1500 dwelling to J. McCabe, to Mrs. Mary Fraker for \$2000 cottage and to J. E. Gernon for \$1000 cottage.

Newport News, Va.—Dwelling.—H. M. Mugler has awarded contract to J. H. Brinson for erection of dwelling.

Pearisburg, Va.—Residence.—W. J. Woods will erect residence to cost \$3500; plans obtained.

Raleigh, N. C.—Office Building.—W. R. Tucker will erect a four or five-story office and store building, as recently noted; work will be done by day labor; later on an elevator, heating apparatus, plumbing, etc., will be needed.

Rome, Tenn.—Residence.—Mrs. D. C. Rutland has had plans prepared for residence to cost \$3200.

Round Hill, Va.—Residence.—A. J. Simpson will erect \$3500 residence after plans on hand.

Round Hill, Va.—Residence.—A. B. Carter will erect \$2600 residence; plans by George F. Barber & Co., of Knoxville, Tenn.

Salisbury, Md.—Depot.—The Baltimore, Chesapeake & Atlantic Railway Co. will erect a freight station; W. Thompson, general manager, Baltimore.

Spray, N. C.—Residence.—George F. Barber & Co., Knoxville, Tenn., have prepared plans for \$3300 residence for Hiram Foard.

Tampa, Fla.—Brick Block.—J. M. Long will erect a brick business block, two stories high, modern in design; plans are completed.

Upper Marlboro, Md.—Church.—St. Mary's Church will erect a new structure for worship, to be built of red brick, with brownstone trimmings, seat 800 persons, Gothic in style, cost \$12,000, and contract will be awarded this week; H. A. Campbell, of Washington, D. C., prepared plans and specifications. Address Rev. Charles J. Trinkhaus, pastor.

Wilmar, Ark.—Residence.—A. H. Gates will erect residence to cost \$2500; plans by George F. Barber & Co., Knoxville, Tenn.

Railroad Manager.—W. Y. Z., care of the Manufacturers' Record, is offering his services as general manager to any small Southern railroad.

RAILROAD CONSTRUCTION.

Railways.

Amarillo, Texas.—E. O. Faulkner, of Eddy, N. M., receiver of the Pecos Valley Railroad, informs the Manufacturers' Record that the Pecos Valley & Northeastern Railroad is to be completed by December 15. It is to be 206 miles long, extending between Amarillo and Roswell, N. M. It will form an extension of the Pecos Valley system, and a contract has been let to Mallory, Cushing & Co., of Charlton, Ia.

Batesburg, S. C.—The extension of the Greenwood, Anderson & Western Railroad to Batesburg is completed. It is eight miles in length. The company controlling this line has been organized under the title of the Slevern & Knoxville Railroad Co., with Richard A. Springs, of New York, president, and P. F. Sullivan, of Charleston, S. C., secretary and treasurer.

Danville, Ala.—Joseph Shackelford, one of the promoters of the Decatur, Danville & Southwestern Railroad, informs the Manufacturers' Record that it is proposed to build this line between the towns mentioned, and ultimately to extend it to Tuscaloosa or Jasper, Ala. The distance between Decatur and Danville is eighteen miles, and to Tuscaloosa is about eighty miles.

Dillon, S. C.—Rankin Bros. have recently built a tramroad into the lumber district near Dillon. It is operated by a corporation known as the Latta Lumber Co.

Frederick, Md.—L. Victor Baughman and others have organized a company under the title of the Frederick, Thurmont & Northern Electric Railroad Co., to build from Frederick to Thurmont, Md., and possibly to Gettysburg, Pa. The first part of the road will be about twelve miles long. The officers are: President, L. Victor Baughman; vice-presidents, Isaac S. Annan, Alexander Ransburg; secretary, Charles C. Waters; treasurer, F. B. Smith; counsel, W. H. Hinks; engineer, R. A. Rager.

La Follette, Tenn.—It is reported that the Tennessee Northern Railway Co. is making arrangements for the proposed extension of its line to Jellico, a distance of twenty miles, and to Middlesboro, Ky., a distance of thirty-three miles. H. M. La Follette is manager of the company.

Leeds, Ala.—The branch of the Southern Railway under construction to the property of the Sloss Iron & Steel Co. is nearly graded. It will be eight miles long.

Lexington, Ky.—It is reported that R. M. Bros. of New York, who is promoting a railroad line in Wolfe and Morgan counties, is making another survey for the line, which will be about thirty-five miles long and connect with the Lexington & Eastern Railroad near Jackson, Ky.

Maxton, N. C.—Messrs. Devane & Hall are constructing a narrow-gauge railroad about five miles long which will be a branch of the Cape Fear & Yadkin Valley Railroad. It is to be used for hauling lumber from tracts in Richmond county.

Memphis, Tenn.—It is stated that one of the Western parties interested in the proposed railroad along the west bank of the Mississippi river to New Orleans is A. Phillips, of St. Louis, who has been investigating the merits of the enterprise for St. Louis and Milwaukee parties. He is represented in Memphis by W. A. Percy and John H. Watkins.

Minden, La.—It is reported that the Arkansas & Louisiana Railroad has been completed to a point within seven miles of Cotton Valley, and that the grading has been completed between the towns mentioned. It is expected to have the line completed between Minden and Cotton Valley by July 1. The road is being promoted by the Arkansas, Louisiana & Southern Railroad Co., of which F. H. Drake is president.

Monterey, Tenn.—C. O. Godfrey, representing the Union Land, Coal & Coke Co., informs the Manufacturers' Record that this company may build a line about twenty miles long for the purpose of opening up its coal and timber property in the vicinity of Monterey. Mr. Godfrey's address is Fort Payne, Ala.

Montgomery, Ala.—The branch of the Mobile & Ohio Railroad between Montgomery and Columbus, Miss., is completed. It is 182 miles in length. It is understood that the line will be open for traffic about June 1.

Pickens, S. C.—The Pickens & Easley Railroad has been completed between the towns mentioned, a distance of nine miles. It is a feeder of the Southern Railway.

River View, Ala.—Surveys are being made from River View to Opelika, a distance of ten miles. The proposed road will be an extension of the Chattahoochee Valley Rail-

road in operation between West Point, Ga., and River View. L. Lanier is president of the company, at West Point.

Street Railways.

Baltimore, Md.—The City Passenger Railway Co. is considering an extension of its lines in the northwestern section of the city. Walter S. Franklin is president of the company.

Baltimore, Md.—It is reported that work is to begin upon the proposed electric railway from the eastern section of the city along the North Point road. It is to be eventually completed to North Point. Ormond Hammond, president of the Maryland Ice Co., of Baltimore, is reported as interested in the enterprise.

Jackson, Tenn.—The electric railway in Jackson has been completed and is now in operation.

St. Louis, Mo.—The Lindell Railway Co. has secured a franchise to build a line in the suburbs of the city which will be an extension of its Delmar Avenue branch. It has also secured franchises for a branch to the Meramec river and into Clayton, Mo. It is understood that the lines will be operated by trolley motors. Work is to begin at once. George W. Baumheff is general manager of the company.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Agricultural Implements.—Homewood Farm Association, J. A. Brown, president, Chadbourne, N. C., will buy farming machinery.

Beltting.—See "Grain Elevator."

Boat.—Harry Sheets, Monroe, La., wants to buy a portable (knockdown) boat, either steel or iron, about forty feet long.

Boats.—Sealed proposals will be received until May 6 for the construction of fifteen 23-foot and six 26-foot Monomoy surfboats, to be delivered on the grounds of the Monmouth Beach Life-Saving Station, near the Galilee Railroad Station, New Jersey. Plans and specifications, together with forms of proposal and full information, can be obtained upon application to the Inspector of life-saving stations, 24 State street, New York city, or U. S. Life-Saving Service, Treasury Building, Washington, D. C.; S. I. Kimball, general superintendent.

Boilers and Engines.—Herbert Burgess, Ramseur, N. C., wants prices on 25-horse-power stationary engine and boiler, with all fixtures complete; also on 15-horse-power engine and boiler. (See "Woodworking Machinery.")

Boiler Supplies.—Arlington Oil & Fertilizer Co., Arlington, Ga., wants to obtain supplies to obviate scale in boilers.

Broom and Brush Machinery.—National Brush & Broom Co., 503 D street N. W., Washington, D. C., will probably want additional broom and brush machinery.

Cotton-gin Press.—C. C. Vaughan, Camden, S. C., will need a cotton-gin press.

Cotton Mill.—Norwood Cotton Manufacturing Co., J. A. Tyson, secretary, Norwood, N. C., is ready to buy equipment for 5000-spindle (twisters) mill.

Cotton Mill.—D. J. Griffin, Tuscaloosa, Ala., is ready to receive bids on fifty roller cards, 100-horse-power engine, 125-horse-power boiler, complete batting outfit, etc.

Cotton-mill Machinery.—W. A. Watson, Millfort Mill Co., Fort Mill, S. C., will need lappers, carders and drawing.

Dredging.—Sealed proposals for dredging at Sabine Pass, Texas, will be received until May 27, and then publicly opened. Information furnished on application. James B. Quinn, major, engineers, custom-house, New Orleans, La.

Electrical Machinery.—F. G. Hughes, Whitewright, Texas, wants to buy a dynamo to operate from three to eight lights, to be run by motor-power.

Electric-light Plant.—Sumter Ice Manufac-

turing Co., Sumter, S. C., invites estimates on erection of arc and incandescent electric-lighting plant; H. Harby, president.

Electric-power Plant.—See "Water Works."

Elevator.—W. R. Tucker, Raleigh, N. C., will need elevator for office building.

Furniture Decorations.—R. B. Lambert, Waynesboro, Pa., wants addresses of manufacturers of drop carvings for furniture.

Gasoline Engine.—See "Grain Elevator."

Grain Elevator.—C. B. Anders, Union Bridge, Md., will be in the market for good second-hand elevator machinery, including 14 or 15-horse-power gasoline engine, belt-ing, shafting, spouting, separator, scales, etc.

Heating Apparatus.—W. R. Tucker, Raleigh, N. C., will need heating apparatus for office building.

Iron Founders.—John E. Craig, Gainesville, Ga., wants to correspond with manufacturers of malleable-iron castings.

Knitting Machinery.—Marietta Knitting Co., Marietta, Ga., is in the market for machinery for finishing fast-black hosiery, dress dryers, etc.

Mining Equipment.—W. W. Turner, Eldorado Springs, Mo., will possibly want machinery for mining lead and zinc.

Naphtha Boats, etc.—A. L. Townsend, Bainbridge, Ga., wants to correspond with builders of naphtha and gasoline launches; wants to obtain estimates on 20 to 25-foot launches. (By a typographical omission the word "foot" was absent from this item in the "Bulletin" of April 26).

Novelties.—George A. Smith, Tryon, N. C., will buy novelties for racket store.

Packing Equipment.—Newton H. Smith, Fayetteville, N. C., wants prices on equipment for packing peaches and tomatoes.

Plumbing.—W. R. Tucker, Raleigh, N. C., will need plumbing.

Railway Equipment.—Marbury Lumber Co., Bozeman, Ala., wants to buy a mile of 25-pound relay rails or new, with steel plates, bolts, etc.

Railway Equipment.—Miller Supply Co., 217 Ninth street, Huntington, W. Va., is in the market for 25-pound relay rail and 50-pound relay rail.

Rock Crusher.—A. J. Twigg, Augusta, Ga., wants to buy a second-hand rock crusher of 80 to 100 yards capacity per day.

Saw Mill.—Homewood Farm Association, J. A. Brown, manager, Chadbourne, N. C., will probably want to buy a saw mill.

Scales.—See "Grain Elevator."

Soda Fountain.—B. P. Stepf, P. M., Flat Rock, N. C., wants to buy a soda fountain, with fixtures.

Steam Shovel.—H. H. George, Jr., Lawrenceville, Ga., wants to lease a steam shovel for four months.

Water-power Plant.—See "Water Works."

Water Works.—Columbus Water Works Co., H. H. Epping, president, Columbus, Ga., will need a pair of pumps for stand-pipe, also probably 5000 feet of mains, also water or electric power for pumps.

Water Works.—The city of Rock Hill, S. C., will open proposals May 15 for the granting of a franchise for water-works system. Specifications now on file in office of city council. W. C. Hutchinson, mayor.

Water Works.—Clinton Water & Light Co., Clinton, Ky., will receive proposals for the construction of water works, plant to include 170 tons cast-iron pipe, three tons special castings, laying of about 12,500 feet of pipe, furnishing and setting of twenty hydrants and necessary valves, tower and tank sixty feet high with capacity of 40,000 gallons, 50-horse-power boiler, 500,000-gallon pump, brick power-house, six-inch tubular well, deep well pump of 150,000 gallons daily capacity and reservoir of 60,000 gallons capacity; R. L. Johnson, president.

Water Works.—R. H. Thomason, Madison, Ga., wants to buy water-supply system for private house; water to be drawn from well six feet in diameter; correspondence solicited.

Woodworking Machinery.—C. C. Vaughan, Camden, S. C., wants to buy a flooring and ceiling machine.

Woodworking Machinery.—Joseph A. Wilson & Co., Johnson City, Tenn., will want machinery for making shuttle blocks and baseball bats.

Woodworking Machinery.—Fred W. Hall, Corry, Pa., wants to correspond with makers of machinery for manufacturing pall handles and spools.

Woodworking Machinery.—Herbert Burgess, Ramseur, N. C., wants prices on double surfacer, planer and matcher to match as

much as twelve inches wide, weight about 4500 pounds; 25-horse-power stationary engine and boiler, with all fixtures; 15-horse-power stationary engine and boiler; small saw mill, with about 48-inch saw; second-hand machinery preferred.

TRADE NOTES.

Saw Mill.—Contract has been placed with the Filer & Stowell Co., of Milwaukee, Wis., to equip a saw mill at Winnsboro, Texas.

Opening a New York Office.—The Keystone Electric Co., of Erie, Pa., manufacturer of electrical machinery and supplies, has opened a New York office at 318 Broadway, ground floor, with Mr. C. F. Whittemore as manager.

Government Contract.—A contract to furnish the United States Navy with 500 galvanized seamless-steel coal baskets has been received by the Granite State Evaporator Co., of Marlow, N. H.; New York offices 500 to 504 Temple court.

Government Belting Contracts.—Messrs. Coggin & Owens, of Baltimore, Md., well-known machinery and supply dealers of that city, have secured recently an order from the national government for 5000 feet of leather belting made by the Hudson Belting Co., of Boston, Mass., for which concern Messrs. Coggin & Owens are agents.

Ball Engines.—New Vancouver Coal Co., Nanaimo, British Columbia, has ordered a 175-horse-power engine from the Ball Engine Co., of Erie, Pa., for electric mining purposes; Chappell Chemical Co., of Hegewisch, Ill., will have an electric-light plant with "Ball" engine to furnish the power; American Ordnance Co., Lynn, Mass., has ordered a 125-horse-power "Ball" engine for use in government work.

Belting Shipment.—Charles A. Schieren & Co., No. 47 Ferry street, New York, have just made a shipment of leather belting to the Pacific Beet Sugar Co., at Hueneme, Cal., of 5500 feet of leather belting, all double sizes, running from four inches in width to sixty-four inches in width, total net weight of the shipment being 9419 pounds. This is one of the largest shipments of leather belting ever sent out of New York.

Ice Machinery.—The York Manufacturing Co., of York, Pa., has contracts to supply Rudolph Weidman, of Lock Haven, Pa., a 15-ton refrigerating plant for brewery; Eugene Lewis, of Greenfield, Ind., an ice plant of twenty-five tons capacity; Loder Brewing Co., of Columbia, Pa., two 40-ton refrigerating machines and a 15-ton ice plant; Valentine Fink, of New York city, a six-ton refrigerating plant for packing-house.

For Warships.—The Buffalo Forge Co., of Buffalo, N. Y., has been shipping recently a number of fans and engines to be used on war vessels of the national government. Machines for the "Yosemite," "Dixie" and a new torpedo-boat have been shipped already, and an order for a revenue cutter is being filled. The Buffalo Forge Co. has been constructing these devices for a number of years, and is able to fill contracts in a most expeditious manner.

Furnished Ammunition Hoists.—A good example of dispatch in filling orders in war times is found in the fact that in nine days from receipt of order the Lidgerwood Manufacturing Co., New York, furnished ammunition hoists for the warships Yosemite and Dixie, being fitted out at Newport News as auxiliary cruisers. The order consisted of ten complete hoists, comprising double-cylinder engines, cages, guides, sheaves and all the necessary paraphernalia.

Sectional Steamboat for the Yukon.—The Yukon river steamboat "Fortune Hunter" has been shipped to St. Michael's Island for use by a mining company just starting its expedition to the Alaska gold fields. This steamboat was constructed during the winter by the Marine Iron Works, of Chicago, Ill. This steamer will be erected at St. Michael's Island, and will be capable of carrying fifty to seventy-five passengers and a large amount of freight. The Marine Iron Works has of recent years built many portable craft of this kind and its success in this work has been marked.

Large Orders for Tools.—The American Tool Works Co., of Cincinnati, O., has received orders during the past week for lathes, planers and milling machines to be placed in the Indianapolis shops of the Economic Power Co., of Rochester, N. Y. Orders have also been received by the American Tool Works Co. for lathes, planers,

shapers, drill presses, milling machines, bolt cutters, etc., for shipment to St. Petersburg, Russia, and for a full line of engine lathes ranging in swing from fourteen to thirty inches for shipment to Stockholm, Sweden, and for planers, lathes and shapers for Mexico.

Dixon Crucible Company.—The annual meeting of the stockholders of the Joseph Dixon Crucible Co. was held at the company's main office, Jersey City, N. J., Monday, April 18, and out of a possible vote of 7345 shares there were 7042 shares voted for the re-election of the old board, consisting of Edward F. C. Young, John A. Walker, Daniel T. Hoag, Richard Butler, William Murray, Alexander T. McGill and Joseph D. Bedle. President E. F. C. Young, Vice-President and Treasurer John A. Walker and Secretary George E. Long were re-elected by the directors. Judge Joseph D. Bedle was also re-elected as counsel.

The Wilkinson Stoker.—The Wilkinson Manufacturing Co., of Philadelphia, Pa., announces that it has removed its main office from 678 Philadelphia Bourse to 1107-1108 Stephen Girard Building, 12th and Girard streets, to which all communications should be addressed. The company also reports that it has received an order from the Nassau Electric Railway Co., of New York, to equip 15,000 horse-power of boilers with the Wilkinson stoker; order from the Brooklyn Heights Railway Co. for the equipment of 12,000 horse-power, and has just completed the installation of stokers under 3500-horse-power boilers at the Waldorf-Astoria Hotel, which is the most beautiful plant in operation, with automatic stokers.

The South Side Elevated Railroad, of Chicago, has put in operation on its lines the Sprague multiple unit system. The change of this entire line is rapidly being made to the electrical system from steam. The Brooklyn (N. Y.) Elevated Railroad also adopted this system for its initial equipment. The Sprague Electric Co.'s works at 527 West 34th street, New York city, is running day and night at present in order to keep up with its orders, among which are contracts from the national government for interior conduit and "Lundell" power motors. The interior work of the Sprague Electric Co. is used upon a large number of the government war vessels, and many of the newly-acquired auxiliary ships and leased boats are being equipped with it.

Ironpall Roofing.—"Ironpall" roofing is composed of two layers of wool felt saturated with a composition of asphaltum and cemented together with a layer of burlap canvass in the center, the whole fabric passing under hydraulic pressure, causing it to be a compact sheet of waterproof roofing, the surface of which is covered with a soft composition, into which is imbedded iron pyrites free from sulphuric acid. In color it is a rich brown, making a portable roofing ready for use. It is both fire and water proof. As the roofing surface is covered with iron, it virtually makes an iron roof, thereby securing the insurance risk the same as on metal or slate roofs. All who contemplate using roofing are invited to write for samples before buying. Address the Armitage Manufacturing Co., 3200 Williamsburg avenue, Richmond, Va.

Lubrication of Gas-engine Cylinders.—The proper lubrication of gas-engine cylinders is a problem that seems to have been solved by the Pennsylvania Railroad Co. An official says: "I had a gas engine at Sharon, Pa., running a pump, and the man that had charge of it allowed the lubricator to run dry and cut the piston, piston rings and cylinder. The makers of the gas engine said the cylinder would have to be sent to the shop and bored out and a new piston put in. It was our busy season and we could not do without water. I had some of Dixon's finely pulverized graphite, and I commenced to feed it into the cylinder through the suction pipe with the air and gas with immediate relief. After about two weeks the engine was running smoother and using less gas than ever before. I had this same engine apart last Saturday, and every place that was cut is smooth as glass. This one instance saved us about \$75. I have great faith in this graphite and always keep it on hand."

A New Belting.—The Boston Belting Co., of Boston, Mass., has placed on the market "Gutta Balata" belting, a comparatively new thing for this country, although belting of a similar nature has been manufactured for many years in European countries successfully and extensively used in the transmission of power. The American product is made under Forsyth's patent, is seamless, and therefore has no external seam to open

and come apart. The maker claims for this belting the following advantages: Can be run with either side next to the pulley; will not deteriorate with reasonable use; practically unaffected by oils or grease; stretches the least of any belting made; does not slip if properly adjusted to the pulleys, and does not require dressing; has its piles so firmly united that separation is almost impossible; unusually durable; can be laced and spliced in the same manner as other belts; will do hard and severe work successfully, and lots of it. Other information will be gladly furnished at any of the offices of the company.

TRADE LITERATURE.

Agricultural Tools. Messrs. Peter Henderson & Co., of 35 and 37 Cortlandt street, New York city, have issued a catalogue of tools and implements, fertilizers, insecticides and essentials for the garden, farm, greenhouse, lawn, orchard, poultry-yard, stable and household.

Slasher Catalogue. The slasher catalogue of the Colomes Iron Foundry & Machine Co., of Colomes, N. Y., is being distributed to those interested. This company's special machinery for the sizing and dressing of warps, etc., has attained a reputation of worth among the manufacturers of cotton goods.

Lightning Arresters. The General Electric Co., of Schenectady, N. Y., has issued a catalogue of lightning arresters. Frequent and unusually severe storms, accompanied by destructive lightning, often ruin electrical apparatus and render circuits inoperative, and these arresters are designed to prevent such damage.

Vapor Launches. An interesting catalogue issued by the Marine Vapor Engine Co., of Jersey City, N. J., contains descriptive and illustrative matter about the vapor (alcohol) launches built by the company. The advantages which the company claims for the "Alco-Vapor" launch over naphtha and other power boats are clearly set forth.

Power Transmission. One of the most complete lines of power-transmitting machinery extant is treated of in the catalogue "A" of the Falls River & Machinery Co., of Cuyahoga Falls, O. The line includes pulleys, shafting, hangers, pillow blocks, couplings, collars, friction-clutch pulleys, friction-clutch couplings, etc. This company has for years met with success throughout the entire country in supplying the machinery which it has chosen to make its specialty, and complete satisfaction with its goods is generally acknowledged.

Art Glass, etc. The L. Grosse Art Glass Works, of Pittsburg, Pa., circulates a catalogue containing some illustrations of the different styles of art-glass decorations which the company manufactures. The Grosse Company's product includes such architectural decorations as art glass, memorial windows, mural decorations, hard-wood interiors, residential work of a colonial character, etc., all of the highest grade in material and workmanship. The paper mache column capitals and other decorations of Charles Enamel, of Boston, are also handled by the L. Grosse Art Glass Works, and special catalogues on these goods are also obtainable.

"Bits of Wisdom." Factory owners will be interested in a circular just issued by Messrs. Alden Spence's Sons & Co., Boston, Mass., manufacturers of "Aldesline" cold-water paint. They claim for their product merit over other paints, and incidentally give good advice to prospective customers. "A dirty face is never an indication of refinement, neither does it inspire confidence, be the face that of a person or building." "Paint your factory walls white, because it will increase the amount of light within and enable your workmen to see and do better work." "An owner who improves the condition of his workmen improves his own condition as well." The above are but sample "bits of wisdom" contained in the circular. Send for it.

April was the largest month in the history of the Winston (N. C.) internal revenue office. The stamp sales aggregated nearly \$195,000, and shipments of manufactured tobacco reached 3,106,434 pounds. There were sold during the month 1,122,576 pounds of leaf tobacco.

The Home Magazine, heretofore published at Binghamton, will issue its June number from its metropolitan office at the St. James Building, New York city.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

Government Bonds in the South.

The proposed loan to be secured by the government for war purposes will give the Southern banking institutions, as well as the Southern people generally, another opportunity to show their fidelity and devotion to the United States, which will doubtless meet with a hearty response. The plan at present under consideration is to allow people generally to subscribe at least a portion of the issue, which will bear 3 per cent. interest. Subscriptions to the bonds may be possibly received at postoffices and other places where accessible. According to a dispatch from Washington, a number of national banks in the country have offered to assist in placing the issue without compensation. Here is an opportunity for the Southern banks to take the same step in assisting the government. The response of the South to the demands of the country since war was declared has been so hearty and unanimous that the Manufacturers' Record does not doubt the loan issue will also be in great demand throughout the Southern States.

In Good Condition.

At the annual meeting the United States Fidelity & Guaranty Co., of Baltimore considered reports of the year's work, which showed a very satisfactory state of affairs. The assets reported were \$1,213,144. The liabilities included capital stock paid in cash \$1,000,000, cash held as security for risks \$26,813.23, and net income, premium and interests, less expense and loss, and surplus fund \$186,830.77. The directors elected the old officers as follows: John R. Bland, president; J. Kemp Bartlett, Jr., Edward J. Penniman and Andrew Freedman, vice-presidents; Alexander Payson Knapp, secretary, and Townsend Scott, treasurer.

New Corporations.

H. A. Williams, R. D. Brandt and others have organized the Eagle Bank at Owensboro, Ky., with \$15,000 capital.

The Loewen Investment Co. has been incorporated at St. Louis, Mo., by Albert Loewen and others, with \$25,000 capital.

John W. Hill, Frank H. Vance and others have formed the Texas Mutual Life Insurance Co., with \$500,000 capital. The office of the company is at Austin, Texas.

The Carolina Insurance & Investment Co., of Yorkville, S. C., has received a commission to do business. J. R. Lindsay and W. M. Probst are directors of the company.

New Securities.

The Bleed-Moore Investment Co. has increased its capital to \$10,000. The office of this company is at St. Louis.

The town of Summit, Miss., has received bids for an issue of \$15,000 in an issue of 6 per cent. bonds for water-works purposes.

It is reported that Messrs. Barbee & Smith have secured the issue of \$150,000 in 4 per cent. refunding bonds sold by the city of Nashville, Tenn.

The issue of \$25,000 in 5 per cent. bonds of Albany, Ga., will be sold on May 16. Bids will be received until that date. John R. Whitehead is chairman of the finance committee.

An election will be held on May 26 by the city of Norfolk, Va., to decide upon

an issue of bonds to the amount of \$150,000 for general improvements. The election will be held in Brambleton Ward only. H. C. Herman, city treasurer, will give further information.

Dividends and Interest.

The First National Bank of Louisville, Ky., has declared a semi-annual dividend of 5 per cent.

The Jefferson City Gaslight Co., of New Orleans, has declared a dividend of \$2.50 per share.

The Irish-American Investment Co., of Augusta, Ga., has declared a dividend of 6 per cent. on its capital stock.

The annual interest of 4 per cent., due May 1 to depositors in the St. James' Savings Fund, will be payable May 16.

Messrs. Townsend, Scott & Co., of Baltimore, Md., will pay interest on 5 and 8 per cent. bonds of Staunton, Va., due May 1.

S. P. Smith, recorder, will receive bids until May 7 for the issue of \$6000 in 6 per cent. water-works bonds of West Union, W. Va.

The Dukehart Brewing Co., of Baltimore, Md., will pay semi-annual interest of 4 per cent. on its bonds at the American National Bank.

Coupons of the consolidated first mortgage bonds of the Central Railway Co., due May 1, 1898, will be paid at the Citizens' National Bank of Baltimore.

Humbleton & Co. will pay the interest due May 1 on the first mortgage 5 per cent. bonds and the convertible 5 per cent. bonds of the Baltimore Traction Co.

Coupons of the first mortgage bonds and of the certificates of indebtedness of the Baltimore City Passenger Railway Co., due May 1, 1898, will be paid at the National Mechanics' Bank of Baltimore.

The receivers of the Baltimore & Ohio Railroad Co. will pay on the first of May at the Finance Co. of Pennsylvania, Philadelphia, interest upon B. & O. equipment trust bonds "B," interest upon Confluence & Oakland Railroad first mortgage bonds. At J. P. Morgan & Co., New York; interest upon Baltimore & New York Railroad Co.'s bonds.

The following interest is payable by the city of Baltimore on and after May 1: Water loans, 1916, 5 per cent., \$125,000; 1926, 4 per cent., \$20,000; 1922, 4 per cent., \$10,000. Jones's Falls loans, 1900, 6 per cent., \$12,000; 1900, 5 per cent., \$11,962.50; 1900, 3.65 per cent., \$4407.37; 1900, 3½ per cent., \$1400; 1900, 3 per cent., \$750. Funding loan, 1916, 5 per cent., \$25,000. Paving loan, 1920, 4 per cent., \$10,000.

Demand for Lead.

As a result of the active demand for lead, new life has been instilled into the mining camps in the southwestern part of the State, says the St. Louis Republic. The outputs of shafts have been doubled in many cases, and an unequalled era of prosperity has set in for the lead producers. Joplin, Carthage, Webb City, Galena and a number of other mining centers have begun to boom as they never have before, and the receipts of lead in St. Louis have been increased beyond all precedent.

The smelters are all running full blast, and more money has been put in circulation in the lead-producing centers than has ever been seen in any of them. The activity has put renewed energy into almost every branch of trade in the cities and towns named, and the railroads, the wholesalers and retailers have reaped profits alike.

A block of marble quarried near Knoxville and weighing 45,000 pounds was recently shipped to a firm at East Cambridge, Mass.

TABLE OF CONTENTS.

EDITORIAL:	Page.
An Object-Lesson of War.....	247
No Time to Falter.....	247
Corporations—An Example.....	247
Heroes of the Hold.....	248
A Chance for Demagogues.....	248
Williamington to the Fore.....	248
Known by Its Fruits.....	248
"A Rain of Iron".....	248
Elne Abtheilung für Handel und Fabrikation in den Vereinigten Staaten.....	248
War and the Railroads.....	249
For Tennessee's Future.....	249
New Orleans Drainage.....	249
For Alabama's Welfare.....	249
Hostility to Corporations.....	249
COMMERCE:	
Trade With Spain.....	250
Trade With Baltic Ports.....	250
Coal and Coke Shipments.....	250
Prospect for Grain Exports.....	250
Baltimore Steam Packet Co.....	250
New Route to Asiatic Ports.....	250
Bay Steamer Schedules.....	250
Jottings at the Ports.....	250
RAILROAD NEWS:	
Along the Illinois Central.....	251
A Proposed Alabama Line.....	251
Sixteen & Knoxville.....	251
Pecos Valley Extension.....	251
Tennessee Northern Extension.....	251
Railroad Notes.....	251
TEXTILES:	
The Handling of Cotton.....	251
A New Roller Gin.....	251
From Old to New.....	251
10,000 Spindle Mill for Cedartown, Ga.....	251
Annual Meeting.....	251
Battling Mill at Tuscaloosa, Ala.....	252
Marietta (Ga.) Knitting Mill Enlarging.....	252
New England Cotton Men.....	252
The Cotton Movement.....	252
Textile Notes Abroad.....	252
Textile Notes.....	252
COTTONSEED OIL:	
The Market for Cottonseed Products.....	252
Cottonseed-Oil Notes.....	252
Dangerous Demands.....	252
LUMBER:	
Lumber Market Reviews:	
Baltimore.....	253
Savannah.....	253
Jacksonville.....	253
Mobile.....	253
Lumber Notes.....	253
Important Enterprise in West Virginia.....	253
MECHANICAL:	
New Design Belted Dynamo (Illus.).....	254
Vertical Power-Feed Door Clamp (Illus.).....	254
Practical Brine-Pipe Covering (Illus.).....	254
Curb Cock That Never Leaks (Illus.).....	255
Art Glass and Kindred Decorations (Illus.).....	255
Bundy Steam and Oil Separator (Illus.).....	255
Ice Manufacture and Refrigeration.....	256
Hollow Drills (Illus.).....	256
PHOSPHATES:	
Phosphate Markets.....	256
Phosphate and Fertilizer Notes.....	256
Iron Markets.....	256
Here Is Common Sense.....	256
CONSTRUCTION DEPARTMENT:	
New Enterprises.....	257
Building Notes.....	258
Railroad Construction.....	258
Machinery Wanted.....	259
Trade Notes.....	259
Trade Literature.....	259
FINANCIAL NEWS:	
Government Bonds in the South.....	259
In Good Condition.....	259
New Corporations.....	259
New Securities.....	259
Dividends and Interest.....	259
Demand for Lead.....	259

K. G. E. PARADE DAY, SCRANTON.

Reduced Rates via Pennsylvania Railroad.

For the benefit of persons desiring to witness the K. G. E. parade at Scranton, Pa., on May 10, 1898, the Pennsylvania Railroad Co. will sell excursion tickets from stations on its line (except Pittsburg and Erie and stations east of Trenton, Bordentown and Mt. Holly), to Scranton and return at rate of single fare for the round trip. These tickets will be sold May 9 and 10, good to return until May 11.

George Allen, secretary Chamber of Commerce, Raleigh, N. C., desires to correspond with parties that will unite with Southern men in erecting a cotton mill and operating a large and valuable water-power on the Seaboard Air Line Railroad. We have raised \$125,000 and want Northern parties with same amount.

Hambleton & Co.**Bankers and Brokers,**

Members New York and Baltimore Stock Exchanges.

9 South Street, BALTIMORE.

High-grade Investment Bonds, Municipal, Railway, Industrial.

Letters of Credit Available Everywhere.

Dividend No. 13.

THE AMERICAN COTTON OIL CO.
No. 46 Cedar Street, New York, May 3d, 1898.
At a meeting of the Board of Directors, held this day, a semi-annual dividend of THREE PER CENT. upon the preferred capital stock of The American Cotton Oil Company was declared payable June 1st, at the office of Winslow, Lanier & Company, 17 Nassau Street, New York.
The Preferred Stock Transfer Books will be closed at 12 noon May 14th, and reopened at 10 A. M. June 2d, 1898. JUSTUS E. RALPH, Secy.

Providence, R. I., May 3, 1898.
Card to the Public

Interested in Mill Building:

I wish to correct a misstatement in the issue of the 29th regarding the "V"-shaped construction for mills.

This method is an original idea by C. A. M. Praray, who patented the same April 17, 1894, and is known by every mill man in this country as the "Praray" improved construction for mill, etc.

The patentee wishes it understood by the public that are interested in this improved method of construction, that this idea, planned by others, and not ap-

proved by him, will be treated as an infringement.

All buildings, such as the Thos. M. Holt and the Cora, of the Thos. M. Holt Manufacturing Co.; the Selma Cotton Mills, at Selma, Ala.; the "Dixie" Cotton Mills, at La Grange, Ga., and the Georgia Western Cotton Mills, Douglasville, Ga., now being erected by Mr. Samuel Hale, and the Afro' Cotton Mills, at Anniston, Ala., were planned in every detail by the inventor, which is,

Yours very truly,

CHARLES A. M. PRARAY.

C. A. M. Praray & Co.,

Mill Architects and Engineers,

Offices at Providence, R. I.,

and Charlotte, N. C.

TO CONTRACTORS.

If you have any municipal bonds or warrants, taken in payment for building waterworks, court or school houses, jails, etc., write us. Conditions being favorable, we can use them.

F. M. STAFFORD & CO.Dealers in Southern Municipal Securities,
Chattanooga, Tenn.**JOHN L. WILLIAMS & SONS,**
BANKERS,

Dealers in RICHMOND, VA.

Southern Investment Securities,

MUNICIPAL BONDS A SPECIALTY.

Correspondence Invited.

J. Wm. MIDDENDORF.

Members Baltimore Stock Exchange.

Wm. B. OLIVER.

MIDDENDORF, OLIVER & CO.
BANKERS AND BROKERS,

No. 213 E. German Street, [KEYSER BUILDING.] Baltimore, Md.

Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished.

MARYLAND TRUST CO.Corner South and German Sts.,
BALTIMORE.CAPITAL, - - \$1,000,000.00
SURPLUS, - - 500,000.00**A LEGAL DEPOSITORY FOR COURT
AND TRUST FUNDS.**

Acts as Financial Agent for States, Cities, Towns, Railroads and other Corporations. Transacts a general trust business. Lends money on approved security. Allows interest on special deposits. Acts as Trustee under Mortgages, Assignments and Deeds of Trust; as Agent for the Transfer or Registration of Stocks and Bonds, and for the payment of coupons, interest and dividends.

J. WILLCOX BROWN, PRESIDENT**LLOYD L. JACKSON, FIRST VICE-PRES****HENRY J. BOWDOIN, SECOND VICE-PRES****J. BERNARD SCOTT, Secretary and Treasurer.****DIRECTORS:**

J. Willcox Brown, Leopold Strouse.
Wm. A. Marburg, Henry Walters.
Basil B. Gordon, H. A. Parr.
Lloyd L. Jackson, B. N. Baker.
Geo. A. von Lingen, Andrew D. Jones.
H. J. Bowdoin, James Bond.
Joshua Levering, Alexander Brown.
Frank Brown, John A. Tompkins.
W. B. Brooks, Jr., Clayton C. Hall.
W. H. Baldwin, J. D. Baker.
Fred'k W. Wood, Joseph E. Willard.
F. M. Thieriot, John B. Garrett.

Maryland Casualty Co.Keyser Building,
Calvert and German Streets,
BALTIMORE.

The Only Company of its kind in Maryland or the South.

Cash Capital, - - \$250,000
Cash Surplus, - - 100,000

Inspects and Insures Boilers and Elevators.
Insures Plate Glass.
Issues all forms of Accident and Liability Policies.

Managed and Superintended by Trained and Experienced Men.

YOUR BUSINESS SOLICITED.**OFFICERS:**

JOHN T. STONE, President.
AUBREY PEARRE, Vice President.
ROBT. N. ELDER, Jr., Secretary.
JOSEPH WALTER, Treasurer and Local Supt.
JOSEPH G. CLOUD, Supt. of Agencies.
MARBURY & BOWDOIN, General Counsel.

DIRECTORS:

Wilmer Brinton, John M. Hood.
Alexander Brown, George C. Jenkins.
Henry J. Bowdoin, Lloyd L. Jackson.
Daniel E. Conklin, J. W. Middendorf.
Charles H. Dickey, Seymour Mandelbaum.
Louis F. Detrick, Aubrey Pearre.
Wm. J. Donnelly, George A. Pope.
Emanuel Greenbaum, Simon Rosenberg.
Jackson C. Gott, Ernst Schmeisser.
W. H. Gorman, John T. Stone.
Douglas H. Gordon, Charles J. Taylor.
Louis K. Gutman, J. Skeitow Williams.
George R. Webb.

AGENTS EVERYWHERE.**North American
Trust Company**

NEW YORK: 100 BROADWAY. LONDON: 55 GRESHAM ST.
Capital paid up....\$1,000,000
Surplus.....\$200,000

Transacts a general trust business.
Allows liberal rates of interest on deposits and trust funds.

Issues letters of Credit and Travelers' Circular Notes payable in dollars or in the money of any foreign country.

Acts as Trustee under mortgages for railway and other companies, and as Agent for the Registration of the stock, and for the transfer of the shares of incorporated companies.

Undertakes the examination of properties offered as security for bond issues, and the obtaining of expert information concerning the actual facts and prospects of reorganization proposals.

Qualified and empowered to act as executor, administrator, trustee, guardian, and assignee, and as receiver and custodian of funds under orders of Court.

OFFICERS:

W. L. TRENHOLM.....President
SAMUEL M. JARVIS, } Vice-Presidents
ROLAND R. CONKLIN, }
JAMES DUANE LIVINGSTON...Trust Officer
S. L. CONKLIN.....Secretary
F. C. PREST.....Assistant Secretary
S. R. HARBERT.....London Secretary
E. J. CHAPPELL.....London Treasurer

DIRECTORS:

Hon. JOHN G. CARLISLE,
Former Secretary of the Treasury of the U. S.
ROLAND R. CONKLIN,
Vice-President of the North American Trust Co.
S. L. CONKLIN,
Secretary of the North American Trust Co.
C. W. DRAKE,
Treasurer of the Rio Grande Western Rwy Co.
SAMUEL M. JARVIS,
Vice-President of the North American Trust Co.
Hon. ADLAI E. STEVENSON,
Ex-Vice-President of the United States.
VAGER SWAYNE,
Of Messrs. Swayne & Swayne, Counselors-at-Law.
Hon. W. L. TRENHOLM,
Former Comptroller of the Currency of the U. S.

Mercantile Trust & Deposit Co.

OF BALTIMORE.

Paid-up Capital, \$1,000,000.
Surplus, \$1,000,000.**DEPOSITS RECEIVED**

On which interest is allowed, governed by current rates obtainable.

TRUSTEES AND ADMINISTRATORS.

This company is a Legal Depository for funds in the hands of Trustees or Administrators, and allows interest on same pending distribution.

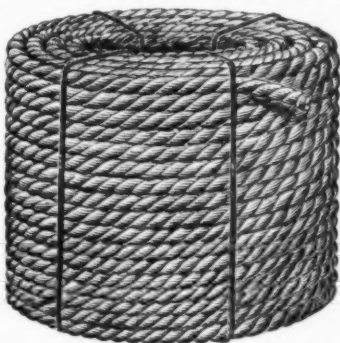
Authorized to act as Executor, Administrator, Guardian, Receiver or Trustee.

ACTS as Trustee of Mortgages of Corporations and accepts Transfer Agency and Registry of Stocks.

Safe Deposit Boxes for Rent.

Vaults supplied for Storage of Silver Chests, etc.

JOHN GILL, of R., President.

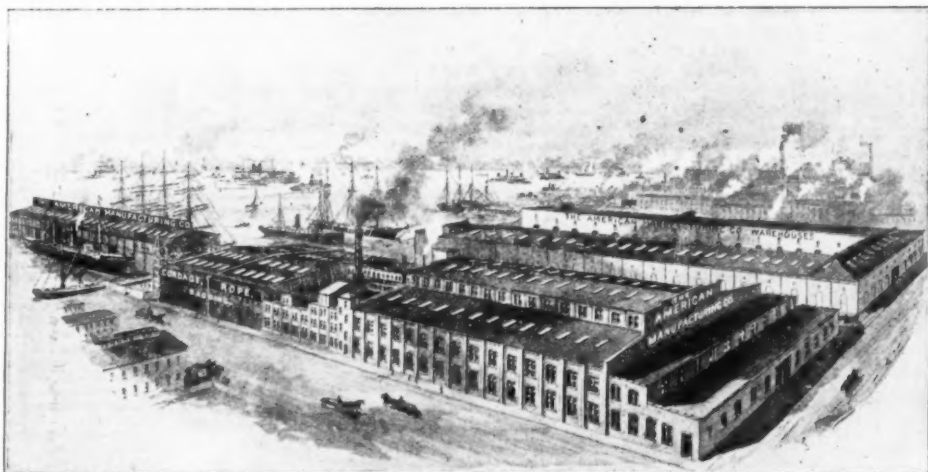
**The American
Manufacturing Co.****Main Office:**

67 Wall Street, New York.

Mills:

West, Milton, Noble and Oak Streets, Greenpoint, Brooklyn.

MANUFACTURERS OF

CORDAGE

The QUALITY of Our Rope is Our FIRST Consideration, the Cost is Secondary.

Send for Information About Transmission Rope.

Ours is the Best Made.

Alphabetical Index of Advertisers.

For "Classified Index" see pages 3, 5 and 7.

A		H		N	
Adams, Robert Franklin.....	26	Haines, Jones & Cadbury Co.....	48	National Paint Works.....	40
Aetna Standard Iron & Steel Co.....	39	Haines, William S., Co.....	4	National Pipe Bending Co.....	17
Alabama Bridge & Boiler Co.....	41	Hales & Ballinger.....	6	National Roofing & Supply Co.....	35
Alabama Foundry & Machine Wks.....	26	Hall Steam Pump Co.....	43	New Atlantic Hotel.....	44
Albany Steam Trap Co.....	9	Hambleton & Co.....	261	Newburg Ice Mch. & Engine Co.....	23
Alber & Byrne.....	6	Hammacher, Schlemmer & Co.....	12	New England Railroad.....	1
Albro, E. D., Co.....	28	Hanahan, J. Ross.....	6	N. J. Car Spring & Rubber Co.....	11
Alexander Bros.....	1	Hansell Spring Co.....	12	New Jersey Zinc Co.....	40
Alford, A. G., Sporting Goods Co.....	1	Hanson & Van Winkle Co.....	44	Newport News Shipbuilding & Dry Dock Co.....	25
Alpha Paint & Mineral Co.....	26	Harrington & King Perforat'g Co.....	4	New York Equipment Co.....	28
Alsing, J. R., Co.....	20	Harrisburg Mfg. & Boiler Co.....	16	Niagara Machine & Tool Works.....	8
American Balance Slide Valve Co.....	24	Hartford Steam Boiler Inspection & Insurance Co.....	29	Nicholson File Co.....	261
American Cotton Oil Co.....	39, 261	Hartley's Boiler Works.....	16	Nordyke & Marmon Co.....	8
American Diamond Rock Drill Co.....	261	Hartzell Novelty Works.....	25	Norris, Burnham & Co.....	43
American Engine Co.....	47	Hayden, J. M., & Co.....	10	North American Metaline Co.....	19
American Impulse Wheel Co. of N.Y.....	47	Hazard Mfg. Co.....	19	North American Trust Co.....	261
American Mfg. Co.....	261	Helios Electric Co.....	45	Northern Electrical Mfg. Co.....	47
American Ship Windlass Co.....	25	Hench & Dromgold.....	29	Norton, C. H.....	6
American Steel & Wire Co.....	33	Hendrick Mfg. Co., Limited.....	32	Norton Emery Wheel Co.....	13
American Supply Co.....	37	Heyward, Julius H.....	36	O	
American Tool Works Co.....	12	Hickman, Williams & Co.....	27	Ober Lathe Co.....	29
American Woodworking Mch. Co.....	30	Hieritz, Theo., & Son.....	17	Otto Gas Engine Works.....	15
Ames Iron Works.....	14	High Point Machine Works.....	14	Owners.....	27
Anderson Water, Lt. & Power Co.....	27	Hirsch, L. K.....	40	P	
Andrews, A. H., & Co.....	29	Holmes, E. & B., Machinery Co.....	30	Pancoast, Henry B., & Co.....	25
Andrews, Perry, & Bro.....	9	Holmes Fibre Graphite Mfg. Co.....	30	Parkhurst Bros. & Co.....	9
Apollo Iron & Steel Co.....	24	Holt, E. J., & Co.....	27	Paxon, J. W., Co.....	39
Armitage Mfg. Co.....	35	Holt, S. L., & Co.....	27	Peacock, Geo.....	25
Atkins, E. C., & Co.....	31	Homer, F. E., & Co.....	45	Peck-Hammond Co.....	2
Atlanta Envelope Co.....	21	Hoopes & Townsend.....	10	Penberthy Injector Co.....	2
Atlanta Terra Cotta Co.....	8	Howard, B. C.....	6	Perkins, T. C., & Co.....	37
Austin White Lime Co.....	6	Howes, S., Co.....	8	Pettee Machine Works.....	37
B		Huther Bros.....	29	Phila. Machine Screw Works.....	37
Babcock & Wilcox Co.....	17	Hutton Engineering Co.....	6	Philadelphia Steel Roofing Co.....	35
Baeder, Adamson & Co.....	29	Hyde Bros. & Co.....	26	Pierce, George M.....	25
Baer, Richard P., & Co.....	28	I		Pittsburg Feed-Water Heater & Engineering Co.....	15
Bailey-Lehby Co.....	19	India Alkali Works.....	38	Pittsburg Locomotive Works.....	3
Bailey, John T., & Co.....	21	Ingersoll-Sergeant Drill Co.....	24	Pittsburgh Plate Glass Co.....	35
Baldwin Locomotive Works.....	13	International Corres. Schools.....	6	Playford Stoker Co.....	18
Ball Engine Co.....	18	Interstate Law Association.....	26	P. O. Box L.....	27
Baltimore, Chesapeake & Richmond Steamboat Co.....	44	Jackson Mfg. Co.....	32	Pomona Terra Cotta Co.....	8
Baltimore Engraving Co.....	1	Janney & Steinmetz.....	40	Pope Mfg. Co.....	1
Baltimore & Ohio R.R.....	1	Jeanesville Iron Works Co.....	41	Pope Reversible Street Roller Co.....	20
Baltimore Steam Packet Co.....	44	Jeffrey Mfg. Co.....	28	Porter, H. K., & Co.....	13
Baltimore Storage & Light Co.....	44	Jenkins Bros.....	18	Poulter & Co.....	28
Barber Asphalt Paving Co.....	25	Jewell Belting Co.....	11	Found, Bessie E.....	6
Barnes, W. F. & John, Co.....	12	Johns, H. W., Mfg. Co.....	35	Powhatan Clay Mfg. Co.....	6
Barnett, G. H., & Co.....	48	Johnston & Nelson.....	26	Praray Chas. A. M., & Co.....	6
Bates, James, Sons.....	9	K		Pratt, N. P., Laboratory.....	6
Beach, H. L.....	39	Keeler, E., Co.....	16	Pratt & Whitney Co.....	8
Beckley, A. J., & Co.....	9	Kelly, O. S., Co., The.....	20	Price & Co.....	1
Beckwood Chemical Co.....	8	Kelly & Jones Co.....	20	Price & Heald.....	1
Benjamin Iron & Steel Co.....	28	Kenly, Wm. L.....	25	Priestman & Co., Inc.....	18
Berryman, James.....	2	Keystone Crusher & Roller Co.....	20	Providence Machine Co.....	37
Bertsch & Co.....	34	Keystone Drop Forge Co.....	8	Pulsometer Steam Pump Co.....	41
Besly, C. H., & Co.....	48	Kiechler Mfg. Co.....	23	Q	
Bird, Wm. M., & Co.....	6	Kilbourne & Jacobs Mfg. Co.....	45	Queen City Printing Ink Co.....	1
Birmingham Boiler Works.....	18	Kilburn, Lincoln & Co.....	36	Queen City Supply Co.....	36
Bliss Co., E. W.....	32	Klipstein, A., & Co.....	39	R	
Block-Pollak Iron Co.....	28	Knox, Henry E., Jr.....	6	Radford, Va., Board of Trade.....	26
Boomer & Roschert Press Co.....	23	L		Rand Drill Co.....	43
Boston Belting Co.....	11	Lambert Gas & Gasoline Eng. Co.....	15	Rawson Electric Co.....	47
Box 134.....	27	Lambert Hoisting Engine Co.....	14	Record Printing House.....	45
Bradford Belting Co.....	11	Lane & Rodley Co.....	23	Reed, F. E., Co.....	12
Bradford Mill Co.....	12	Laue Manufacturing Co.....	29	Reid, Thorburn.....	6
Bradley Pulverizer Co.....	21	Lathbury & Spackman.....	6	Remington Machine Co.....	23
Bradstreet Mercantile Agency.....	26	Lawrence, W. W., & Co.....	40	Reuter & Mallory.....	27
Branson Machine Co.....	36	Lee, J. M.....	25	Rhoads, J. E., & Sons.....	11
Brickenstein, L. B.....	8	Leffel, James, & Co.....	43	Riley's, John F., Machine Works.....	27
Brooks, T. H., & Co.....	35	Lewis, H. F., & Co., Ltd.....	47	Riter-Conley Co.....	6
Broomell, Schmidt & Co., Ltd.....	18	Lidgerwood Manufacturing Co.....	19	Roanoke Navigation & Water Power Co.....	26
Brown, Bierce Co.....	44	Link-Belt Engineering Co.....	28	Robbins & Myers Co.....	47
Brown Hoisting & Con. Mch. Co.....	19	Lobdell Car Wheel Co.....	16	Robertson, Jas., Mfg. Co.....	19
Brown, Lucius P.....	6	Lombard Iron Wks. & Supply Co.....	12	Robins, A. K., & Co.....	9
Buckeye Engine Co.....	14	Louisiana Central Cons. Co., Ltd.....	27	Robinson, J. M., & Co.....	34
Buckeye Iron and Brass Works.....	39	Lowell Machine Shop.....	36	Robinson, Wm. C., & Son.....	44
Buffalo Forge Co.....	48	Lowell Textile School.....	10	Royal Bag Mfg. Co.....	24
Bureau of Freight and Transportation, Charleston, S. C.....	24	Ludlow-Saylor Wire Co.....	34	Ruger, J. W., Mfg. Co.....	15
Burr Manufacturing Co.....	9	Ludlow Valve Mfg. Co.....	41	Russell & Co.....	20
Burt Labelling Machine Co.....	10	Lunkenheimer Co.....	48	S	
Bushnell, G. H., Press Co.....	38	M		Samson Steel Belt Hook Co.....	24
Byers, Jno. F., Machine Co.....	19	Macfarren, S. J.....	6	Sanderson, John.....	2
C		Main Belting Co.....	10	T	
Cady, C. N.....	38	Makepeace, C. R., & Co.....	6	Tampograph Co.....	12
Caldwell, H. W., & Son Co.....	4	Marion Steam Shovel Co.....	2	Tanite Co.....	48
Calera Lime Co.....	6	Martin, Hy., Brick Mch. Mfg. Co.....	2	Taylor, A. W., Land & Lumber Co.....	26
Cameron, A. S., Steam Pump Wks.....	41	Maryland Casualty Co.....	261	Thayer, J. A., & Co.....	26
Cameron & Barkley Co.....	19	Maryland Cement Co.....	6	Thompson, J., & Son, Mfg. Co.....	15
Capital City Machine Works.....	34	Maryland Mfg. & Construction Co.....	45	Thompson & Bushnell.....	16
Carborundum Co.....	13	Maryland Trust Co.....	261	Toledo Machine & Tool Co.....	34
Card Electric Co.....	46	Mason Machine Works.....	38	Toomey, Frank.....	27
Cardwell Machine Co.....	38	Mason Regulator Co.....	41	Tower & Wallace.....	6
Carlins, Thomas, Sons.....	28	McClave, Brooks & Co.....	16	Trenton Iron Co.....	19
Carroll, George.....	2	McCoy, Joseph F., Co.....	8	Trevor Mfg. Co.....	29
Carroll Iron Works.....	19	McDonald, John, & Sons.....	6	Triumph Electric Co.....	45
Carver Cotton Gin Co.....	36	McFadden, Charles, Jr.....	6	Tudor Boiler Mfg. Co.....	16
Case Mfg. Co.....	19	McGowan, John H., Co.....	41	U	
Caster, Curran & Bullitt.....	18	McKenna, David.....	35	Union Iron Works Co.....	28
C. & B. Line.....	1	McLanahan & Stone.....	20	United Electric Improvement Co.....	46
Central Chemical Co.....	8	Mead, Y. A., Cycle Co.....	1	V	
Chambersburg Engineering Co.....	18	Mecklenburg Iron Works.....	15	Valdosta Foundry & Machine Co.....	24
Chance, G. W., & Co.....	6	Means & Fulton Iron Wks.....	16	Valk & Murdoch Iron Works.....	16
Chapman, Wm. A., & Co.....	6	Mercantile Trust & Deposit Co.....	261	Vandusen Co., E. W.....	41
Chapman Valve Mfg. Co.....	43	Merchant & Co., Inc.....	41	Viaduct Brass Works.....	18
Charlotte Machine Co.....	37	Merchants & Miners' Transp. Co.....	44	Vitrified Emery Wheel Co.....	36
Chattanooga Machinery Co.....	29	O		Vulcan Works.....	36
Chattanooga Steel Roofing Co.....	34	P		W	

Ads. marked thus * appear every other week.
 Ads. marked thus † appear in first issue of each month.
 Ads. marked thus ‡ appear in second issue of each month.
 Ads. marked thus § not in this issue.

PROPOSALS.

SEALED PROPOSALS will be received by the City Clerk up to 7 o'clock P. M., June 7, 1898, for furnishing 50 arc lights of 2000 candle-power each, to be used in lighting the streets of the city of Greenville, Mississippi, and for such incandescent lights as may be required, under a franchise to be granted by the City Council. J. M. LEE, City Clerk, Greenville, Miss.

PROPOSALS FOR STOP VALVES.

Proposals, indorsed "Proposals for Stop Valves," and addressed to the Chief Engineer of the Water Board, will be received until 12 o'clock noon, Monday, May 9, 1898, at the office of the Chief Engineer of the Water Board, for furnishing and delivering 1,000, Baltimore, Md., such stop valves as may be required by the Water Board during the balance of the year 1898.

The approximate quantities to be required are: 50 six-inch valves, 20 ten-inch valves, 10 twelve-inch valves, 6 sixteen-inch valves, 10 twenty-inch valves, 1 twenty-four-inch valve, to be bevel-gear, 2 twenty-four-inch valves, to be spur-gear, 5 thirty-inch valves and 1 thirty-six inch valve, with by-pass, for heavy pressure.

Specifications may be obtained from the office of the Chief Engineer of the Water Board.

All proposals must be accompanied by a certified check for five hundred dollars, (\$500) made payable to the Water Board of Baltimore City and the successful bidder will be required to give bond satisfactory to the Water Board equal in amount to one-half of the value of the contract.

The Water Board reserves the right to reject any or all bids.

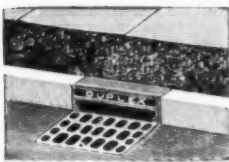
By order of the Water Board,
WILLIAM L. KENLY,
Chief Engineer.

Sealed Bids

For \$25,000 of Five Per Cent. Gold Bonds of the City of Albany, Ga.

ALBANY, GA., April 19, 1898.
Sealed bids addressed to the undersigned will be received at the Clerk's office of the city of Albany until noon of the 16th day of May, 1898, for the whole or any part of an issue of \$25,000 in bonds of the city of Albany, of the denomination of \$500, drawing 5 per cent. interest, payable semi-annually, due 25 years from the date thereof, and payable, principal and interest, in gold coin of the present United States standard of weight and fineness at the Mercantile National Bank in the city of New York, State of New York. No bid considered unless accompanied by a certified check for \$500 to insure bona fides, and the right is expressly reserved to reject any and all bids.

[Signed] JNO. R. WHITEHEAD, Chm.
H. A. TARVER,
N. F. TIFT,
Finance Committee.



Duplex Covers and Inlets

Do not encroach upon lawn or require obstruction in the street to intercept water. Ironwork extends below frost line to protect brickwork from frost. Only inlet that supports sewer pipe and not supported by it. Adjustable to depth and inclination of curb. Large capacity.

GEORGE M. PIERCE, 8 Euclid Ave., CLEVELAND, OHIO.

Do You Want to BUY **Laundry Machinery**
"The Columbia" Modern Laundry Machinery
Is the Cheapest and Best.
Latest "Up To Date" Prices "Right"
WILSON LAUNDRY MACHINERY CO.
Send for Catalog R. COLUMBIA, PA.

"PROVIDENCE" **WINDLASSES.** CAPSTANS
Best in the World.
BUILT BY THE
AMERICAN SHIP WINDLASS CO., Providence, R. I.

CARS MINING, LOGGING, PLANTATION, CONTRACTORS' and SMALL CARS OF ALL KINDS.
Wheels, Axles, Irons, &c.
Send for Catalogue. GEO. PEACOCK, Selma, Ala.

NEWPORT NEWS
Shipbuilding and Dry Dock Co.

WORKS AT NEWPORT NEWS, VA.
(ON HAMPTON ROADS)

Equipped with a Simpson Basin Dry Dock, capable of docking a vessel 600 feet long, drawing twenty-five feet of water, at any stage of the tide.

Repairs made promptly and at reasonable rates.

SHIP AND ENGINE BUILDERS

For estimates and further particulars address

C. B. ORCUTT, President,

No. 1 BROADWAY.

NEW YORK.



The Hartzell Self-Draining Reel

is different from others, it is superior, as it is most convenient, it drains all the water out of the Hose after it has been reeled. No obstructions outside of this reel, to interfere with the free winding or unwinding of the Hose.

It is a nice ornament to any lawn. It greatly lessens the expense of keeping up a lawn, because the Hose is kept in order.

It is well mechanically made.

Your customers want THEM.

Will you supply them?

For descriptive circulars and price, address

The Hartzell Novelty Works, Alliance, O., U. S. A.

CHARLESTON, S. C.

Is showing great Commercial Development.

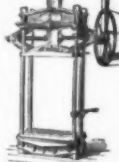
For Sale—Residences, Building Lots, Farms, Manufacturing and Hotel Sites.

An ideal city for a HOME. Full of historic interest. Cost of living is cheap and climate delightful. Educational facilities are unsurpassed.

Garden produce of farms near Charleston is shipped to Northern and Eastern markets at good profits.

Exchange Banking & Trust Company,
CHARLESTON, S. C.

The Boomer & Boschert KNUCKLE JOINT PRESS



For Baling Cloth, Paper, Yarn, &c.

Or for any other purpose requiring great pressure.

BOOMER & BOSCHERT PRESS CO.
386 W. Water St., Syracuse, N. Y.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price \$4.00 a year.



ASPHALT PAVEMENTS

Enhance the Value of Property One-Third.

DURABLE HEALTHFUL NOISELESS

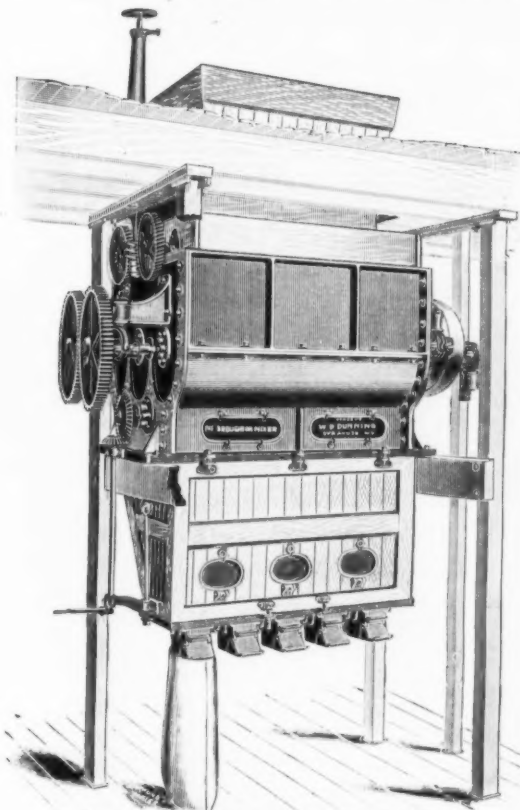
20,000,000 square yards laid in eighteen years.

For plans and estimates apply to

THE BARBER ASPHALT PAVING COMPANY,

General Office, 11 Broadway, New York.

The... Broughton Plaster Mixer.



MANUFACTURED BY

W. D. DUNNING, - SYRACUSE, N. Y. Send for Catalogue.

F. A. WALKER, President.

M. H. PITHAN, Secretary.

S. H. SINCLAIR CO.

Manufacturers of

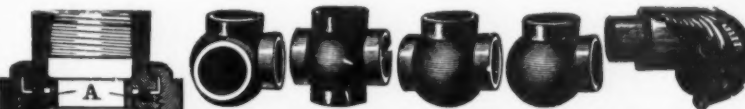
LAUNDRY MACHINERY.



"THE SINCLAIR" IRONER
Is the First and the Best.

8-10 S. Canal St.
CHICAGO

Write for prices and catalogues.



HENRY B. PANCOAST & CO.

SUCCESSORS TO

PANCOAST & MAULE,

PHILADELPHIA, PA.

MANUFACTURERS AND DEALERS IN

WROUGHT-IRON PIPE AND FITTINGS,
BRASS WORK AND TOOLS,
BRASS AND IRON RAILING FITTINGS,
"AMERICAN" SELF-PACKED UNIONS,
"SKELETON" STOCKS AND DIES,
STEAM GLUE HEATERS,
STEAM RADIATORS AND COILS.

SEND FOR CATALOGUE.



A New Jaw
about once a year
will make this
Cutter last until
you forget when
you bought it.
JAW.
the body never wears out.

SPECIAL Advertisements OF GENERAL Interest.

OPPORTUNITIES FOR INVESTORS.

INVEST IN - - - Columbus, Georgia. 20,000 Electric H. P.

Developed and Being Developed.
125 Feet Fall at Columbus, Ga., in Chattahoochee River.
Largest and Cheapest H. P. in the South.

Established Manufacturing Center.
Large Operative Population. Temperate Climate.
Columbus Was Incorporated in 1829 and Has Never Had An Epidemic.
Free Mill Sites, either in or just without the corporate limits. No Strikes.
Lowest Tax Rate of any Georgia County.
No Oppressive State Legislation.
Seven Railways. Five Steamboat Lines.
Low Freight Rates.
Electric Belt Line. Electric Street Cars.
Minimum Cost of all Building Material.
Public Day, Night and Kindergarten Schools.
Handsome Churches and Public Library.
A Refined and Progressive Citizenship.

The Coming Great Manufacturing Metropolis of Georgia and the South. - - - -

ADDRESS L. H. CHAPPELL, Mayor, or
RHODES BROWNE, Secretary
Columbus Board of Trade,
COLUMBUS, GA.

TWO MILLIONS ACRES LAND FOR SALE.

In Alabama, Florida, Mississippi and Texas.
Dry, Healthy, Fertile and Well Timbered.
YELLOW PINE LANDS A SPECIALTY.

Apply to or address JOHNSTON & NELSON, 241 E. German Street, BALTIMORE, MD.

RADFORD, Virginia.

Parties desiring to start new enterprises or change location, are invited to investigate Radford, Va. Good climate, water and drainage, elevation, 1800 feet. On Norfolk & Western Ry. at junction of Columbus, O., and Pocahontas Coal Fields divisions, as well as Southern connection via Knoxville, Tenn. In midst of fine agricultural country and 25 miles from ore fields. Population, 4000, churches, public and private schools, electric light and car line. Ice plant and other manufactures.

Responsible parties are offered inducements, including no city taxes for five years. Address
G. T. KEARSLEY,
Secretary Board of Trade,
RADFORD, VA.

WILMINGTON, N. C.

The Place for Factories.
Central location between extreme North and South. Climate perfect. City very healthy. Surrounded by the most productive cotton and rice plantations and truck farms. One lives cheaply in Wilmington and consequently labor is cheap also. Our city is the best situated on the South Atlantic Coast for factories of all descriptions, it has the lowest freight rates in the entire timber and cotton belt. Our cotton mill runs day and night, and new factories are exempt from taxation for ten years.
For further information write to the
SECRETARY of Chamber of Commerce.

NOTICE.

We mine, manufacture, buy and sell all kinds of mineral paints, dry colors, minerals and clays. ALPHA PAINT AND MINERAL CO., 338 Bourse Building, Philadelphia, Pa.

Cotton Machinery

FOR SALE.

Apply New York Office, 18 Walker Street,
or at Mills, Paterson, N. J.

**Plant of 40,000 Spindles
Being Sold.**

Carding, Spinning, Warping and Weaving
Machinery. All in excellent condition.
Prices Low. Send for Complete List.

ALSO

**Bleaching, Dyeing and
Finishing Machinery.**

Robt. Franklin Adams.

AGENTS WANTED—To Sell the
"Battle Ax" Hay Press.

Latest invention, Automatic, Ball Bearing, Compound Leverage, Self Contained. No gear wheels or springs. Full circle. Simple in construction, efficient in service. Write, prices, discounts.

ALABAMA FOUNDRY & MACHINE WORKS,
NEW DECATUR, ALA.

IMPROVED WATER POWER

for COTTON MILL in Central North Carolina
FOR SALE. Address E. J. HOLT, Smithfield, N. C.

Will Sell or Lease

A First-Class Manganese Property

In Virginia, close to Railroad. Several hundred tons of best ore has been shipped from property. For particulars, address K. B. STONER, Fin-castle, Va.

Horse Power for Sale or Lease.

Manufacturers who are contemplating removing their plant or establishing a branch factory are invited to investigate the superior advantages possessed by the

Roanoke Navigation & Water Power Co.

The third largest power in the United States, situated at WELDON, N. C., at the junction of the Seaboard Air Line and Atlantic Coast Line.

2000 HORSE POWER NOW READY for immediate use and capable of development to almost any extent, situated at the head of navigation of Roanoke River and junction of Atlantic Coast Line and Seaboard Air Line, INSURING FIRST-CLASS SHIPPING FACILITIES TO ALL PORTS AND LOW FREIGHT RATES. Absolutely free from interference by high water. Good manufacturing sites for various industries are available. 2,000,000 brick on hand and a yard sufficiently large to supply any demand. Weldon is in the centre of the RICHEST COTTON LAND IN THE SOUTH 200,000 BALES COTTON BEING PRODUCED ANNUALLY.

This section is RICH in TIMBER and WOOD for manufacturing purposes, as well as for making acetate of lime of potash. Boats using 3 1/2 feet water can go up the river from our power site for 30 miles, developing a valuable timber country that has not been penetrated.

FOR THE ESTABLISHMENT OF AN ICE FACTORY no better location can be found, having a territory of a radius of 50 miles, containing a population of 400,000.

LABOR is INTELLIGENT, ABUNDANT and CHEAP. ALL DESIRABLE and NEEDED ADVANTAGES.

Our power can be bought or leased at reasonable rates. Will take pleasure in answering all requests for detailed information. Address

Roanoke Navigation & Water Power Co.
JAS. W. WILSON, Pres. & Gen. Mgr.
WELDON, N. C.

FOR SALE.

About 29 Miles Railroad,
IN

Western Texas,

Standard gauge 60-lb steel rails barely used, with all ties and other materials, franchises, etc., belonging thereto. Suitable for a Texas or Mexican railroad development.

For full particulars address,

HYDE BROS & CO.
Lewis Building,
PITTSBURG, PA.

Special Commissioner's Sale,

WEDNESDAY, MAY 18, 1898,

OF THE

**Newport Cotton Mill,
NEWPORT, TENN.**

The following describes the property: The building is a heavy brick structure, 40x200, four stories high; the dye house 40x60, and engine and boiler buildings are of frame, covered, roof and sides, with iron. The engine is a Frick & Co. Corliss of 130 H. P.; 2 Erie City boilers, 80 H. P. each. The looms are of the Bridesburg & Knowles pattern, 192 in number, with quillers and beams sufficient for service. The dye house is equipped with dyeing and drying machines sufficient for 500 or more looms. The building will accommodate 100 more looms. Buildings and machinery will be sold separately and together. Newport is the county seat of Cocke County, Tennessee, situated in a beautiful, fertile and healthy section. Labor abundant and cheap. Living as cheap as anywhere in the entire South. The mill is situated on the main line of the Southern Railway running direct to Washington. Any further information will be cheerfully given by

JOHN W. FISHER,
Special Commissioner, Newport, Tennessee.

ROBERT WARE GRASTY,

Attorney and Counsellor-at-Law,
EQUITABLE BUILDING,
ATLANTA, GA.

General law practice. Collections, loans, money invested, options secured and information furnished concerning Southern properties of all kinds.

Corporation Laws of West Virginia Are the Best.

Charter is good in any state, no liability, signers furnished saving you \$40, consultation free.

INTER-STATE LAW ASSOCIATION,
CHARLESTON, W. VA.

Incorporate Your Business.

West Virginia Laws Most Liberal.
No Personal Liability. Non-Assessable Stock.
Plan mailed on application.

J. A. THAYER & CO., Attorneys,
Charleston, W. Va.

For Sale to Close Out Business.

26,000 ACRES OF LAND,
From 4 to 16 miles from Summerville, S. C. a noted health resort, containing long and short leaf pine, oak, hickory, ash, cypress, etc. Contains excellent farming and pasture land, and is convertible into a game preserve. Also second-hand machinery in good order.

A. W. TAYLOR LAND & LUMBER CO.
SUMMERVILLE, S. C.

FORECLOSURE SALE

OF THE

Property and Franchise of
Standard Cotton Mills
of Rock Hill, South
Carolina.

Under and by virtue of the decree of the Circuit Court of the United States, for the District of South Carolina, filed the fourth day of April A. D. 1898, in the cases of A. Klipstein & Company vs. Standard Cotton Mills, et al, and Central Trust Company of New York vs. Standard Cotton Mills, et al, Julius H. Heyward, Standing Master of said court, will sell at public auction upon the premises of said defendant corporation, in the city of Rock Hill, in the county of York and State of South Carolina, on the tenth day of May, 1898, at 12 o'clock M., "the entire property and estate of The Standard Cotton Mills, being the real estate of said corporation, embracing twenty-seven acres of land, more or less, situated on the line of the Ohio River and Charleston Railway, in the city of Rock Hill and county of York and State of South Carolina adjoining lands now or formerly of W. B. Wilson and A. R. Smith, Mrs. Margaret Kimbrell, I. & A. Jones, W. M. Steel, and others, including the factory and all dwellings and out-houses thereon, all the machinery in said factory, fixtures, workshops, tools and materials, and all the Corporate Rights and Franchises and Privileges of said Corporation, and any and all other property of said Corporation now in the hands of the Receiver."

TERMS—One third cash, upon the order of the court confirming the sale, and the balance on a credit of twelve months with interest from day of sale, secured by bond of the purchaser and a mortgage of the premises, property to be insured for amount of credit portion and policy assigned as additional security. Purchaser to have the privilege of paying all cash.

The upset price will be \$40,000 for said property as a whole, and no bid shall be finally accepted unless accompanied with a certified check for \$5000, which shall be forfeited in case of the purchaser failing to comply with the terms of sale.

In complying with the terms of said sale any bondholder may use his bonds as cash to the extent of the dividend that he would be entitled to receive on said bond or bonds, and any party to the cause has leave to become a purchaser.

JULIUS H. HEYWARD,
Standing Master.

THE BRADSTREET Mercantile Agency

WAS ESTABLISHED IN 1849.

Is the oldest and financially the strongest organization of its kind, working in one interest and under one management, with more capital invested in the business, and expends more money every year for the collection and dissemination of its information than any similar institution in the world. Its reports are considered in the light of a guide by both investors and those contemplating the granting of credit. In addition to a large corps of skilled employees, more than one hundred thousand correspondents contribute the result of their investigation and opinions. Subscriptions are annual, and may commence at any time the subscriber elects. Details as to prices and terms will be furnished upon application.

CHARLES F. CLARK, President,
Baltimore Office, Equitable Building.
H. KERSHAW, Supt

The Columbia Water Power Co.

COLUMBIA, S. C.

Has Developed 10,000 Electric H.-P.,
Which They Offer For Sale In Large or
Small Units for Manufacturing Purposes.

The Largest Electrical Horse-Power developed in the country outside of Niagara Falls. Ample power at all seasons of the year. Free from ice in winter. More economical than steam.

= = COLUMBIA = =

Has a population of 25,000. It has educational advantages equal to any city in the country. The climate is equable and agreeable. Taxes are low and building material cheap.

Skilled Labor and Freedom from Labor Organization Interference.

Seven Railroad Systems Enter Columbia, Insuring
Low Freight Rates to All Points.

THE CENTRE OF THE COTTON PRODUCING COUNTRY.

Address Boston Office, 53 State Street, Room 608,

GEO. WALLACE, Gen'l Mgr.

BOSTON, MASS.

WM. C. HAWKINS, Managing Engineer, Columbia, S. C.

Sale by Special Master.

By R. M. MARSHALL & BRO., Auctioneers.

The United States of America, District of South Carolina, in the Circuit Court, fourth circuit. W. B. Strang, Jr., & Company vs. Greenwood, Anderson and Western Railway et al. Intervention of Georgia Railroad Bank.

Under and by virtue of a decree of the Hon. Charles H. Simonton, United States Circuit Judge, bearing date the 4th day of April, 1898, I, the undersigned, G. H. Sass, Special Master, will sell at public outcry to the highest bidder, at the Batesburg Cotton Mill, at Batesburg, South Carolina, at the hour of 3 o'clock P. M., on Wednesday, the first day of June, A. D. 1898:

All that lot, piece or parcel of land situate, lying and being within the corporate limits of the town of Batesburg, in Lexington County, State of South Carolina, containing sixty-eight acres, more or less, and bounded by lands of Mary and Hattie Mitchell, L. Hartlidge estate, David Rawl, T. S. Fox, and others, on which is erected a three-story brick cotton mill building, about sixteen cottages and other buildings, together with all machinery. The improvements on the land consist of a cotton factory operating 100 looms and a corresponding number of spindles, and containing picking machinery, cards, railway heads, drawing frames, cloth room machinery, Lowell filling frames, one slasher, belting, shifting, two good boilers, one Corliss engine and a new electric-light plant, according to the following schedule: Two (2) boilers, 100 H. P. each; one (1) Corliss engine, 150 H. P.; picker room machinery, Kitson's; 100 looms, Whiting; one (1) folder, Lowell Machine Co.; one (1) brusher, Lowell Machine Co.; one (1) gauge calendar; one (1) cloth press; one (1) electric-light dynamo; twenty-seven (27) Mason cards; four (4) Jenk's draw heads; one (1) Higgin's slubber; two (2) Higgin's speeders; three thousand five hundred (3,500) spindles, Lowell Machine Co.; two (2) spool frames; one (1) slasher; two (2) warpers; shafting, pulleys, belting.

TERMS.—One-third Cash, and the balance in two equal successive annual instalments; the credit part to bear interest from the day of sale, payable annually, and to be secured by bond of the purchaser and a mortgage of the premises sold; buildings to be insured and policy assigned to protect the mortgage. Purchaser to pay the Special Master twenty-five dollars for papers, and to pay all taxes payable after the day of sale, and to have the option of paying all cash.

G. H. SASS,
Special Master.

SAWMILL MANUFACTURERS

who desire to change their location are invited to investigate the timber resources along the line of the Shreveport and Red River Valley Railway. Forests of yellow pine, ash, cotton-wood, cypress and gum can now be secured along the line of the road at low prices. Low rates guaranteed to all points. Address

LOUISIANA CENTRAL CONSTRUCTION CO., Ltd.
Shreveport, La.

Charcoal Iron.

Capital wanted to develop large iron property in Texas. An abundance of timber for charcoal. Transportation facilities excellent. For full particulars address

OWNERS,
Care Manufacturers' Record.

WANTED.

Machinery to Manufacture

We have a thoroughly equipped Machine shop, Carpenter Shop and Foundry, and can do all classes of Machine Work very reasonable. Try us.

SOUTHERN FOUNDRY & MACHINE WORKS,
FREDERICKSBURG, VA.

FOR SALE.

Up-to-date Wheel Factory

in one of the best Southern cities. 3 railroads. Capacity 150 sets of wheels per day. 10,000 finished spokes per day. Best of material right at door at cord-wood prices. Address

P. O. BOX L,
Meridian, Miss.

Patent Grate Bar Right

FOR SALE.

New England and Western States for Sale.

Big income from royalty. One county in North Carolina pays \$1,500 per year. Wanted manufacturing agents in every State to work on royalty. One hundred per cent. profit to manufacturers. Salesmen on commission or on lease as agent for specified territory. Big profit to business men. Saves 20 per cent. fuel.

P. Morrow, Yorkville, S. C.: "Works better than you claimed."
Geo. A. Gray and R. C. G. Love, of Gastonia, N. C.: "Cost of grate same at first; one-fifth after of any other."

Particulars on application to
EARL & WILSON, Gastonia, N. C.

Bargains in Machinery FOR IMMEDIATE DELIVERY

FLOUR MILL OUTFIT.

Complete Flour and Corn Mill outfit of 50 barrels daily capacity. Used only a short time and in very good order.

Offered at a sacrifice!

Who wants it?

Rich bargains in all sorts of Machinery, Boilers, Railroad Equipment, &c.

THOS. P. CONARD,

16 Forrest Bldg., PHILADELPHIA.

SECOND-HAND

Automatic Engines and Boilers

in great variety at low prices. These engines have been all rebuilt, are practically equal to new. Send for quotations. State just what you need.

S. L. HOLT & CO.

67 Sudbury Street, BOSTON, MASS.

BARGAINS In New and Second-Hand MACHINERY.

Lathes from 12" to 48", Planers from 20" up to 60", 48", 54" and 60" Radial Drills, No. 2 Newton Milling Machine, No. 2 Screw Machine, Shapers from 6" to 30", Boilermakers' Punches, Shears, Edge Planers, Rolls, Drills, Engines, Boilers, Pumps and Dynamometers.

FRANK TOOMEY, 131 N. THIRD ST., PHILA.

FOR SALE-CHEAP.

One (1) 24" Horizontal McCormick Turbine Wheel, wheel case large enough for a pair of wheels, all mounted on heavy steel "I" beams, long draft tube to conduct water from wheel. Outfit built to work under 40 ft. head, but can be used under lower heads; 84"x18" Fly Wheel, weighing 5000 lbs.; also 1 Governor. For prices and drawings apply to THE ANDERSON WATER LIGHT & POWER CO., Anderson, S. C.

FOR SALE.—1 So H. P. Poole & Hunt Engine; 1 40 H. P. Nagle Engine; 1 65 H. P. Engine; 2 No. 5 Knowles Pumps; 1 No. 6 Knowles Air Pump and Receiver; 1 10" x 12" Porter Engine; 1 25 H. P. Erie City Iron Works Economic Boiler; 1 50 H. P. Retort Tubular Boiler; 3 65 H. P. Retort Tubular Boilers; 1 8 H. P. Upright Boiler, all thoroughly overhauled, also 1 Marine Boiler, new, to suit 17" Square Engine, and 300 ft. of 6" Cast Iron Pipe with flanges on ends and a Lot of Saw Mill machinery. Write for prices to

JOHN F. RILEY'S MACHINE WORKS,
6 and 8 South Street, CHARLESTON, S. C.

FOR SALE.

One Morgan Traveling Crane,

Ten tons capacity, span 45 feet 6 inches. In first-class condition.

THE WESTINGHOUSE MACHINE CO
PITTSBURGH, PA.

FOR SALE.

One second-hand "BERRYMAN" HEATER AND PURIFIER, in perfect condition and guaranteed good as new. Will sell cheap for cash. Address

M. F., care Mfrs. Record,
Baltimore, Md.

Tough. Clean. Dense.
Recommended for Rolls Ice Machinery and all castings requiring dense structure and smooth finish.

HICKMAN PIG IRON.
HICKMAN, WILLIAMS & CO.

Exclusive Agents,

CHICAGO: 1135 The Rookery, Tel. Main 826.
LOUISVILLE: Kenyon Building.

EDWARD J. ETING, IRON & STEEL,

Land Title Bldg., Broad & Chestnut Sts., Philadelphia, Pa.
Storage Yard—Old Navy Yard.

REPRESENTING The Holland Company
Girders and Tee Rails.

REPRESENTING Matthew Addy & Co.
PIG IRON.

AGENT UNION MINING CO. Dayton Coal & Iron Co.

MFRS. OF "Mt. Savage" Fire Brick PIG IRON.

YOU CAN SAVE MONEY

by buying your Dynamos, Lamps, Generators, Motors, etc., from us. We carry a stock of Second-hand Electrical Machinery, repaired and in first-class order. All apparatus guaranteed to be in excellent operative condition.

Central stations and isolated plants can turn scrap dynamos, wire and incandescent lamps into cash by writing to us.

THE CORNMAN COMPANY,
1136 Hamilton Street, CLEVELAND, OHIO.

FOR SALE.

One Five-Million Gallon Worthington High Duty Pumping Engine.

This engine has been used at the Eastern Pumping Station of the Baltimore City Water Department since 1892, and is in first-class repair, having been in service up to June 15th, 1897. It was removed only for the reason that the service required a larger engine.

The engine is of the Worthington compound type, with high duty attachment, and is as good as new, having been carefully cared for.

The engine has given in regular service a duty from 75,000,000 to 85,000,000 foot pounds, pumping 6,500,000 gallons of water in twenty-four hours.

For price and other details apply to

WILLIAM L. KENLY,

Chief Engineer Water Department,

BALTIMORE, MD.

BARGAINS!

DYNAMOS IN STOCK.

Incandescent—16, 30, 35, 40, 50, 60, 100, 125, 150, 200, 250, 300, 350, 425, 450, 500, 540, 650, 750, 1000 Light.

Arc—9, 15, 20, 25, 30, 35, 40, 45, 50, 60, 65 Light; 1200 C. P. or 2000 C. P.

Alternators—500, 600, 650, 750, 1000, 1500, 2000 Light.

Power Generators—20, 25, 50, 60, 75, 100 Horse Power.

All of Standard makes, principally Edison, Thomson-Houston, Westinghouse, Brush. Send for monthly BARGAIN SHEET giving complete list with prices. Also Motors, Arc Lamps, Instruments and Supplies.

CHAS. E. GREGORY COMPANY,
58-60-62 Clinton St., CHICAGO.

For Sale Cheap.

One 6-ton Ice Making Absorption Machine, in Southern town, good condition, only run two years; reason for selling, no market for its product. Address,

BOX 134, ROME, GA.

FOR SALE CHEAP.

Two 8 to 10 H. P. and
1 25 H. P. Upright Engine,
New; also

1 12 H. P. Horizontal Engine
in A No. 1 condition; also

1 60 H. P. Upright Boiler
in first-class condition. Address

REUTER & MALLORY, Baltimore, Md.

FOR SALE.

ENGINES for Blast Furnaces, Foundries, Converters and Rolling Mills. MILL TRAINS (3-high), 36 in., 40 in., 48 in., 12 in. and 6 in. SHEARS for Blooms, Billets, Plates, Sheets, Old Rails and Scrap. CRANES—Yale and Towne Pillar Crane (10-ton); Jib Cranes, Iron and Wooden. STEAM HAMMERS, various sizes and makes. SQUEEZERS (Rotary). FLY WHEELS and BAND WHEELS, various sizes. Punches, Straighteners, Roll Lathe, Riveter, Machine Shop Tools, etc., etc. LOCOMOTIVES, various gauges, sizes and styles.

B. M. EVERSON,
301 Smithfield Street, PITTSBURGH, PA.
Sales Agt. BALDWIN LOCOMOTIVE WORKS,
Philadelphia, Pa.

HIGH-GRADE LOCOMOTIVES.

New York Elevated Railroad and Brooklyn Bridge Locomotives.

These Locomotives are Standard Gauge, until recently in service on the above-mentioned railroads, being suitable for use on Logging and Suburban roads, and for switching purposes.

They have been discontinued from service because of the introduction of electricity and the replacement by heavier locomotives; therefore, not offered for sale on account of their inefficiency. They are all in thoroughly good condition, and expert examination is invited. For prices and illustrated descriptions address

BENJAMIN WATSON,
Coffee Exchange Building,
66 Beaver Street, NEW YORK CITY.
RELAYING STEEL RAILS.

WANTED. One Second-Hand Shay Locomotive

for logging railway; 30-inch gauge or wider. Name price, present location and freight rate to New Orleans, La. Fully describe same, state its present condition and say how long used. If possible, send cut. Address SHAY, care Manufacturers' Record.

FOR SALE. Several Shay Patent Logging Locomotives.

Also other logging locomotives and cars.

M. MITSHKUN & CO.
Wight St. near Meldrum Ave., Detroit, Mich.

Relaying Rails.

Second-hand equipment and light new Steel Rails.
L. E. HIRSCH, 549 Rookery Bldg., Chicago.

FOR SALE

8 3-ft. gauge Locomotives.
1 Standard gauge Locomotive.
2 1 1/2-yard Steam Shovels.
6 3-ft. gauge 3 yard Dump Cars.
25 new 3-ft. gauge 1 1/2-yard Cars, for shovel or hand work.
5 side and centre Unloading Plows.
1 Leveling Car with plow.
10 Hoisting Engines.
6 Centrifugal Pumps.
Large stock of Engines, Boilers and Steam Pumps.

THOMAS CARLIN'S SONS,
ALLEGHENY, PA.

BARGAINS! COMPLETE MINING OUTFIT.

1-Norwalk Air Compressor, 20" Cylinder.
1-Clayton Air Compressor, 14" Cyls. Duplex.
3-Lidgerwood Hoisting Engines, 7"x10" and 8"x12"
2-100 H. P. Horz. Boilers, all complete.
2-40 H. P. Horz. Tubular Boilers, all complete.
1-85 H. P. 18"x28" Watertown Horz. Engine.
All the above, together with lot of Drills, Receivers, Duplex Pumps, Feed Pumps, Engines, Boilers, Machine and Blacksmith Shop Equipment, will be sold low. For full particulars and prices,

Poulterer & Co., 206 Bullitt Bldg., Philadelphia, Pa.

Relaying Rails.

This company has for sale

2000 Tons of 60-lb. Relaying Rails,
From the New England R. R.

500 Tons of 50-lb. Relaying Rails,
From the Norfolk & Western R. R.

150 Tons of 52-lb. Relaying Rails,
From the Norfolk & Western R. R.

Can be delivered most favorably in the South.

Address

BENJAMIN IRON & STEEL CO., Buffalo, N. Y.

We are always in the market to buy or sell old material.

JUSTICE COX, JR.

552-554 Bullitt Bldg., Phila.,

Agent for

Pulaski Iron Company.

Brier Hill Iron & Coal Company.

Lebanon Valley Furnace Company.

FOR SALE.

A number of Second-hand
SPLIT SWITCHES
for 30 lb. rail, (3 ft. gauge of track),
including 4 ft. or 6 ft. Frog, Ground
Lever, Switch Points and Connecting
Rods.

New and Relaying Steel Rails
Bought and Sold.

ROBINSON & ORR,
419 Wood St., PITTSBURGH, PA.

FOR SALE.

RAILS and ROLLING STOCK

1500 tons 60 lb. Relaying Rails with Splices.

500 tons 56 lb. Relaying Rails with Splices.

1500 tons new Steel Rails, 48 lbs., with Splices and Spikes.

1000 tons new Steel Rails, 45 lbs., with Splices and Spikes.

Lot of narrow gauge engines, flat and box cars, at Galveston, Texas. Call or write.

BLOCK-POLLAK IRON CO.

CINCINNATI, OHIO, or CHICAGO, ILL.

We are always in the market to buy relaying rails and scrap iron of all kinds for cash.

FOR SALE.

One Standard gauge 22-ton Porter, saddle tank,

switching locomotive, cylinders 12x18; 1 stand-

ard gauge 15-ton Baldwin-Forney type, 10x14; 1

3-ft. gauge, 12-ton Shay geared locomotive; 1 3-ft.

gauge, saddle tank, 9-ton Porter, cylinders 8x12;

1 3-ft. gauge, 13-ton saddle tank Porter, cylinders

10x14; 1 3-ft. Baldwin Mogul, 18-ton, cylinders

12x18; 100 tons 30-lb. iron rails in Tennessee; 250

tons 25 and 30-lb. rails in Louisiana; 20 second-

hand logging cars, 3-ft. gauge. Write for prices.

HASKINS WILLIAMS & CO.

1916 Morris Ave., BIRMINGHAM, ALA.

Wanted—Relay Rails and Scrap Iron for Cash.

Relaying Rails

50, 56, 58, 60, 67 and 70 pounds to yard

FOR SALE.

DALLETT & CO.

201 Walnut Place, PHILADELPHIA, PA.

RAILS and LOCOMOTIVES

We have a lot of RELAYING RAILS with fastenings, 16 pounds to 56 pounds with fastenings. Also 12-ton, 15-ton, 25-ton and 30-ton LOCOMOTIVES. If in the market for RAILWAY EQUIPMENT write us for prices and specifications.

SOUTHERN IRON & EQUIPMENT CO., Atlanta, Ga.

LOCOMOTIVES

ADAPTED TO A VARIETY OF USES.

All of the Lake Street Elevated R. R. Engines have had less than three and some of them less than one year's wear.

Weight, 28 to 30 tons. Twenty tons on Drivers.

Diameter of Drivers 44 inches.

Four-Wheel Steel Tired Truck under tank.

Two-Wheel Pony Front Truck added, if desired.

Tank Capacity, 750 Gallons.

May be increased to 1000 or 1750 Gallons. Vacuum Brakes.

A large line of 8 and 10-wheel road engines; also 4 and 6-wheel connected switchers; also narrow gauge equipment.

For prices and full description write

FITZ-HUGH & COMPANY,

Dealers in Relaying Rail, Locomotives, etc.,

MONADNOCK B. OCK, CHICAGO.

Mention this paper.

LOGGING CARS,
LIVE ROLLS,
DRY KILNS,
IRON KILN TRUCKS

**SECOND-HAND
LOCOMOTIVES**

UNION IRON WORKS CO., Selma, Ala.

FOR SALE.

Locomotives. Passenger Cars.

FOUR six-wheel Baldwin Switchers with eight-wheel, slope-back tenders, equipped with Westinghouse Airbrakes to drivers, tender wheels, and with train connections, now being overhauled at Baldwin Locomotive Works, ready in a few days. A rare opportunity to obtain a bargain.

We have also obtained an additional lot of the 50 ton 18x24 inch cylinder ten-wheelers, recently advertised; have two just out of shop, in perfect order. The last lot went off like hot cakes.

A large lot of Passenger Cars, Miller Couplers, Westinghouse Airbrakes. Cars are of various sizes. If you wish to buy write us.

NEW YORK EQUIPMENT CO., 80 Broadway, New York.

FOR SALE

17 10x12 Baldwin Locomotives.
1 9x14 Porter Locomotive.
1 7x12 " "

All standard gauge and in perfect running order.
A GREAT BARGAIN.

JOHN D. DAILY,

Harlem River and Third Avenue, New York City.

Chain Elevators, Conveyors.



JEFFREY
Roller, Steel and Special Chains
FOR
**ELEVATING
AND
CONVEYING
MACHINERY**
FOR HANDLING MATERIAL OF ALL KINDS
**POWER TRANSMISSION
MACHINERY.**
COAL MINING MACHINERY.
Wire Cable
Conveyors,
For long and
short distance
conveying.
163 Washington St.
NEW YORK.
Send for Catalogue.
THE JEFFREY MFG. CO.
Columbus, Ohio.

CONVEYORS

ELEVATORS



THE LINK-BELT CARRIER
—HAS—
Buckets Rigidly Attached to Chains.
Self-Oiling Wheels.
Automatic Feed.
Self-Moving Discharger.
Equalizing Gear Drive.
SEND FOR . . .
DESCRIPTIVE CATALOGUE.

EWART LINK BELTING.

SPROCKET WHEELS.

LINK-BELT ENGINEERING CO.

NICETOWN, PHILA.

49 Dey Street, NEW YORK.

Richard P. Baer & Co.

Successors to

A. I. LYON & CO.

Room 55, MANUFACTURERS' RECORD BUILDING,

N. W. Cor. Lexington and North Sts.

BALTIMORE, MD.

Mill men with good hardwood lumber to offer for cash are invited to correspond with us.

LUMBER

WALNUT LOGS WANTED.

CREOSOTED

PINOLINE WOOD PRESERVATIVE.

Highest Antiseptic Qualities. Insoluble in water.

FOR PRICKS WHITE

**PILES, LUMBER
and CROSSTIES**

Treated with Dead Oil of Coal Tar.

PINOLINE ROOFING PAINT.

Durable, Elastic and Cheap.

Fernandina Oil & Creosote Works, Fernandina, Fla.

WEST PASCAGOULA CREOSOTE WORKS,

West Pascagoula, Miss.

Situated on Pascagoula Bay and on the line of the Louisville & Nashville Railroad.

These works have been in operation for more than twenty years, were recently entirely rebuilt and enlarged, and are now prepared to execute all orders for creosoted piles and timber thoroughly impregnated with dead oil of coal tar. New cylinders 115 feet long. Capacity one million feet per month. Address

J. N. HUSTON,

Supt. West Pascagoula Creosote Works, West Pascagoula, Miss.

VENEERS AND HARDWOOD LUMBER.

Importers of

Mahogany and Foreign Woods,

Manufacturers of

DOMESTIC & FOREIGN

Hardwood Lumber and Veneers,

Cigar Box Lumber.

The E. D. Albro Co.

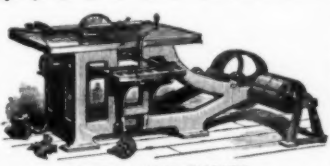
**VENEER CUTTING
AND BAND SAW MILLS.**

CINCINNATI, O.

EASTERN BRANCH, Corner Sixth and Lewis Streets, E. R., New York

CORDESMAN, MEYER & Co.

27, 29, 31 Central Avenue, CINCINNATI, OHIO.

FINE GRADES OF LATEST
**WOOD
WORKING
Machinery**
of Every Description.

VARIETY WOOD WORKER.

For....

Planing Mills,
Furniture and
Chair Factories,
Carriage, Wagon,
Agricultural
Works, etc.Write for Circulars and
Prices.**PATENT
LATHES**

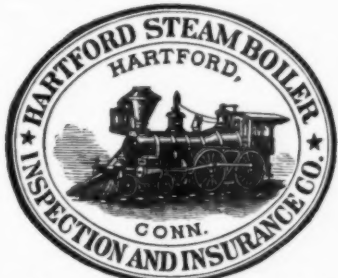
For turning Axe, Adze, Pick, Sledge, Hammer, Hatchet, Auger, File, Knife, Chisel, Fork, Hoe, Rake, Broom and Mop HANDLES, Pike Poles, Whiffletrees, Yokes, Spokes, Porch Spindles, Table Legs, Tent Stakes, Ball Bats, Mallets, etc.

Boring Machines, Sanders
Chuckling Machines,
Shapers, Special
Machinery.**The Ober Lathe Co.**
Chagrin Falls, Ohio, U. S. A.As numerous as the sands on the seashore are
the users of our**SAND PAPERS,**

ALL KINDS:

Flint Paper, Garnet Paper, Emery Paper & Emery Cloth.The SUPERIOR QUALITY of our goods is unquestioned. **YOU RUN NO RISK.****HAIR FELTING** for Covering Boilers, Steam and Water Pipe, and
Lining Refrigerators.**BAEDER, ADAMSON & CO.,** 67 Beekman Street, New York.
730 Market Street, Philadelphia. 143 Milk Street, Boston.
182 Lake Street, Chicago.**THIS
HANGER**GUARANTEED TO GIVE PERFECT
SATISFACTION, and our TRACK has no
equal, and**OUR PRICES are RIGHT.****CRONK'S****Double-Braced Steel Rail**

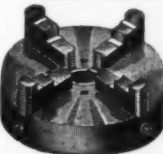
Patented June 12, 1888.

With covered wheels, making it stronger, and also keeps off all storm and everything that might
block the wheels, and cannot be broken or thrown from the track. Each hanger has gauge mark to
put it up by, so anyone can hang door and get it right first time.**CRONK HANGER CO., - - ELMIRA, N. Y.**Incorporated
1866.Charter
Perpetual.Issues Policies of Insurance after a Careful Inspection
of the Boilers, Covering all Loss or Damage to
Boilers, Buildings and Machinery, and Damage
Resulting from Loss of Life and Personal In-
juries Caused by Steam Boiler Explosions.Full information concerning the plan of the Company's operations can be obtained at the
COMPANY'S OFFICE, HARTFORD, CONN., or at any Agency.J. M. ALLEN, President. W. B. FRANKLIN, Vice-Prest. J. B. PIERCE, Secretary.
FRANCIS B. ALLEN, 2d Vice-Prest. E. J. MURPHY, M. E., Consulting Engineer.

GENERAL AGENTS IN THE SOUTH.

LAWFORD & MCKIM, BALTIMORE, MD., Chamber Commerce.
C. C. GARDINER, ST. LOUIS, MO., 319 N. Fourth Street.
LOUIS V. CLARK & CO., BIRMINGHAM, ALA., 2021 First Avenue.
W. S. HASTIE & SON, CHARLESTON, S. C., 44 Broad Street.
PETER F. PESCU, NEW ORLEANS, LA., 188 Gravier Street.**PATENT GROOVER OR DADO HEAD.**Can be used on any Circular Saw Mandrel. groove, either
with or across the grain, and will not leave a
rough edge as in the case with ordinary groovers.**HUTHER BROS.**SAW MANUFACTURERS,
234 Mill Street, ROCHESTER, N. Y.
California Saw Works, San Francisco, Cal.,
Agents for Pacific Coast.**How to
Dry Lumber?**Information Given FREE. A Great
DISCOVERY. The Most Perfect,
Rapid and CHEAPEST Process for
Green, Air Dried, Staves and Head-
ing. State kind, thickness and
amount wanted per day. Address:**THE A. H. ANDREWS CO.,**

300-304 Wabash Ave., CHICAGO.

H. S. SERVOS, Gen'l Agt.
360 Greene Street, Brooklyn, N. Y.**SKINNER CHUCKS**Independent and Universal
Chucks, Combination
Lathe Chucks with patent
reversible jaws, Drill
Chucks, Planer Chucks
and Face Plate Jaws.

SKINNER CHUCK CO.

SEND FOR CATALOGUE. NEW BRITAIN, CONN.

FRANKLIN F. DAVIS,

Contracting Engineer.

Steam Power Plants.

Saw Mills. Shingle Mills.

Logging Railroad Equipment.

Plans and estimates furnished on application.
406 Austell Building, ATLANTA, GEORGIA.**FREE.**If you will give us your name and
address we will mail you a Cata-
logue and Price-list of one of the
largest lines of**Wood Working Machinery**

in the country.

CORDESMAN MACHINE CO.

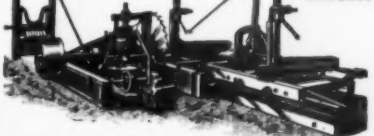
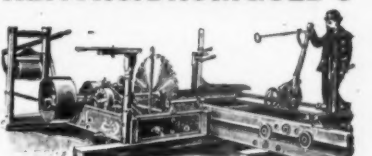
26 to 36 Butler Street, CINCINNATI, O.

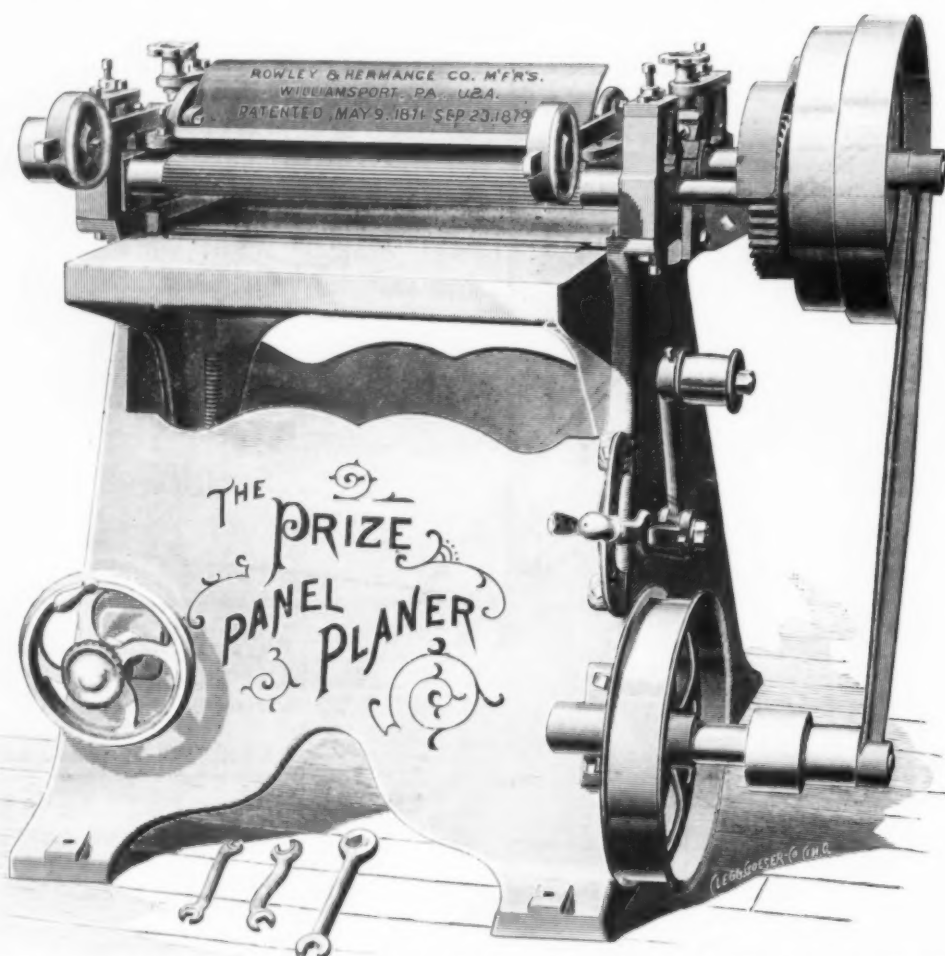
WOOD WORKING MACHINERYof all kinds for Sash, Door and Blind Factories,
Planing Mills, Furniture, &c. Also builders of
Carpet Looms, Air Compressors, Bench Visas, Bicycles, &c.
Send for Souvenir Catalogue.**H. B. SMITH MCH. CO.,** Smithville, Bar Co., N. J.**"Ironsides" Two Saw Lumber Trimmer.**A model of perfection in design, construction
and efficiency.

Our circular tells all about it.

CHATTANOOGA MACHINERY CO.

1318 Market St., Chattanooga, Tenn.

Improved
Law's Pat.
Combined Shingle
Heading Machine.**For the Best
MACHINERY**FOR
SHINGLES,
HEADING and STAVES,
Veneer Cutters
and Improved**GAUGE LATHES**FOR
Turning Handles, Etc.ADDRESS
Trevor Mfg. Co.SUCCESSORS TO
TREVOR & CO.
Lockport, N. Y.**THE FARQUHAR
SAW MILL**VARIABLE FRICTION
FEED, Most Accurate
Set Works Made.PORTABLE, STATIONARY & TRACTION
Engines and Boilers a specialty. Send for catalogue to
A. B. FARQUHAR CO., Ltd., YORK, PA.**HENCH & DROMGOLD'S****SAW MILL AND ENGINES**A wonderful improvement in Friction Feeds
and Gig-Back. Back motion of Carriage three
times as fast as any other in the market. Friction
Clutch Feed, causing all the feed gearing to stand
still while backing; a great saving in power and
wear. Write for circulars and prices; furnished
free upon application. Also Spring Tooth Har-
rows, Hay Rakes, Cultivators, Corn Plant-
ers, Shellers, etc. Mention this paper.**HENCH & DROMGOLD, Manfrs., YORK, PA.**



The Rowley & Hermance Prize panel planer is a very popular machine. It is strong, compact and does very fine work. Information about this and any other machinery you need at our sales-departments.

AMERICAN

WOOD WORKING MACHINE CO.

Sales Departments:

New York.

Boston.

Chicago.

Williamsport, Pa.



E. & B. HOLMES MACHINERY CO., BUFFALO, N. Y.

(OFFICE and FACTORY, 51-63 Chicago Street.)

Woodworking Machinery.

COOPERAGE MACHINERY.

HOLMES VARIABLE SPEED COUNTERSHAFT.

SEND FOR OUR CATALOGUES.

The Cyclone Wheel

FOR
WOODWORKERS

For Saws and Tools
it Beats the World.
It will not Draw Temper.
Rapid Cutting.
Durable in Use.

Run Dry or in Water.
Has Great Strength.
Heat or Cold has No
Effect upon it.

SEND FOR CATALOGUE M.

VITRIFIED WHEEL CO., WESTFIELD, MASS.



SAWING MACHINERY

Double Cut-off Saws,

Scroll Saws, Saw Benches, Combination Rip and Cut-Off Saw Tables, Tilting Table Saw Benches, Steel Saw Arbors.

Patent Saw Gauges, etc.

Address **H. L. BEACH,**

Montrose Pa.

WOOD-WORKING MACHINERY

Circular Saw Mill Machinery,
Clapboard and Lath Machinery,
Planers, Matchers and Molding Machines,
Band and Scroll Saws,
Sash, Blind and Door Machinery a specialty.

Surfacing Machines,
Re-Saws, "Buzz" Planers and
Veneer Cutting Machinery,
Spoke & Axe Handle and Bobbin Machinery,
Saws and Belting and General Mill Supplies.

Send for catalogue and estimates, stating exactly what is required.
Largest Machinery Dealers in the United States.

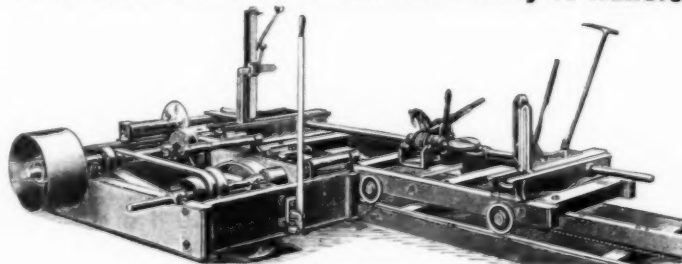
W. E. DREW,
AGENT.

S. C. FORSAITH MACHINE CO., MACHINISTS AND GENERAL

MANCHESTER, N. H.

If You Want a Good Saw Mill

Or a Good Line of Saw Mill Machinery to Handle



WRITE TO

STANDARD SAW MILL MACHINERY CO.

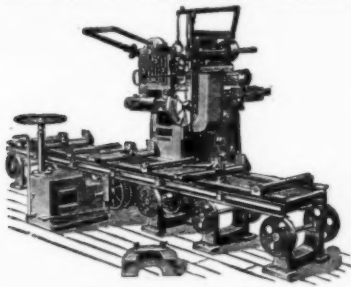
911 East 12th Street, - ERIE, PA.

Saw Mills, Gang Edgers, Saws, Engines, Boilers, Belting, etc.

Advertise in the Manufacturers' Record.

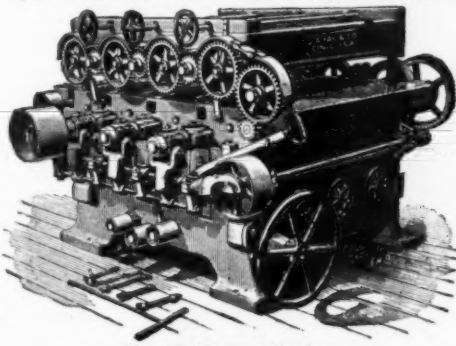
HIGH GRADE MACHINERY

For Car Shops, Planing Mills, Furniture Factories, Wheel and Vehicle Makers, &c.



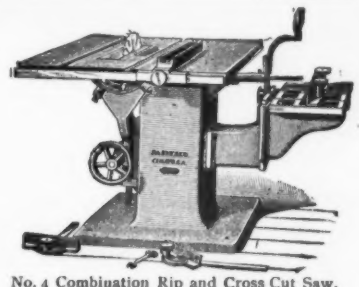
No. 3 Automatic Car Gainer.

More of our
Machinery
is in use
and more
is sold today
than any
other make.

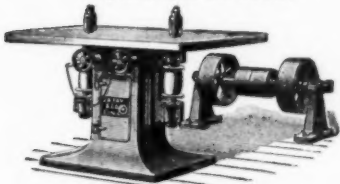


No. 4 Triple Drum Sander.

Your
correspondence
is solicited.
Printed matter
and prices
furnished
on application.



No. 4 Combination Rip and Cross Cut Saw.

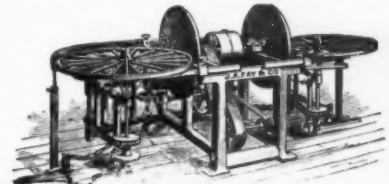


No. 2 Edge Molder and Shaper.

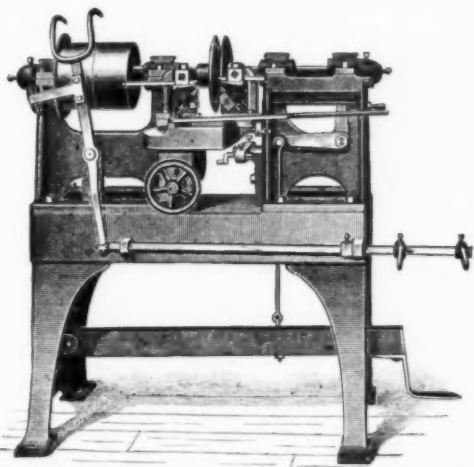
J. A. FAY & CO.

270-290 W. FRONT ST.

CINCINNATI, O.



Automatic Wheel Tread Sander.



HERE is a Lathe for Turning Heads, Bottoms and Covers. Stock from 6 inches to 25 inches square can be worked in this Lathe, the edge being shaped to any desired pattern. The edge-shaping knives are furnished with caps to insure smooth cutting and are independently adjustable to any angle in a horizontal plane.

— HEADING LATHE —

"It does everything in the heading line but talk."—A RECENT CUSTOMER. We know this to be the best Lathe made for this work; you will know it if you investigate. See Catalogue B.

BAXTER D. WHITNEY, WINCHENDON, MASS., U. S. A.

UNEXCELLED FOR

BAND SAWS.
ALL WIDTHS.**TOUGHNESS
TEMPER
TENSION**

BRANCH HOUSES:

Chicago, Ill.
Louisville, Ky.
Boston, Mass.
San Francisco, Cal.

HENRY DISSTON & SONS,

INCORPORATED,

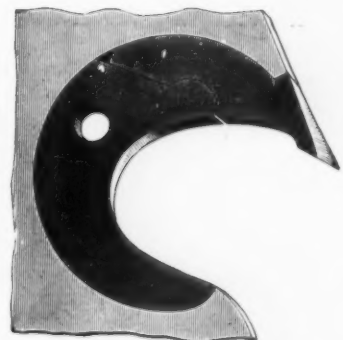
PHILADELPHIA, PA.

Having had over fifty years' experience in manufacturing saws, we feel justified in saying that our goods are superior to all others, from the fact that we have, by constantly experimenting at great cost, arrived at a state of perfection in machinery, which can only be obtained by years of constant application and watchfulness.

Persons ordering circular saws will save themselves much trouble by exercising care in making out their orders; we furnish blanks to facilitate this, which can be had on application.

Send for Price List and Discount Sheet.

Send for New Edition of Lumberman's Handbook.



Disston's Inserted Chisel-Tooth Saw.

MANUFACTURERS

E. C. ATKINS & CO.

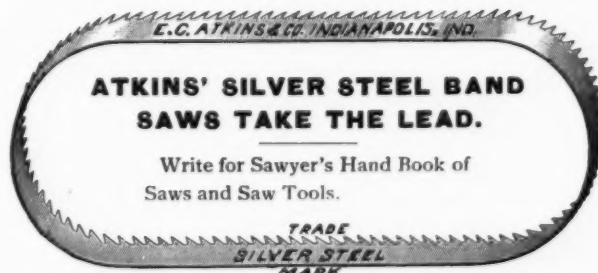
MANUFACTURERS

MADE FROM FINEST
SELECTED STEEL.
SOLID TOOTH.

Indianapolis, Ind.

BRANCH
HOUSES { Memphis, Tenn.
Chattanooga, Tenn.
Minneapolis, Minn.

TEMPERED BY
NATURAL GAS.
INSERTED TOOTH.



CIRCULAR, BAND, GANG, DRAG, CROSS-CUT, HAND AND SAWS
OF EVERY DESCRIPTION. CYLINDER SAWS RE-STEELLED.

EASY RUNNING FOUNDRY BARROWS.



All Parts Extra Heavy.

The Bearings being made full length of hub cutting is avoided.

BARROWS FOR
Contractors, Mines, Mills, Railroads.

JACKSON MFG. CO., Harrisburg, Pa.

ASK FOR CATALOGUE.

Mining Cars.

Wire Rope Thimbles.

THE E. S. STILES PRESS CO.

20 Mill Street, Watertown, N. Y.

Designers and
Builders of

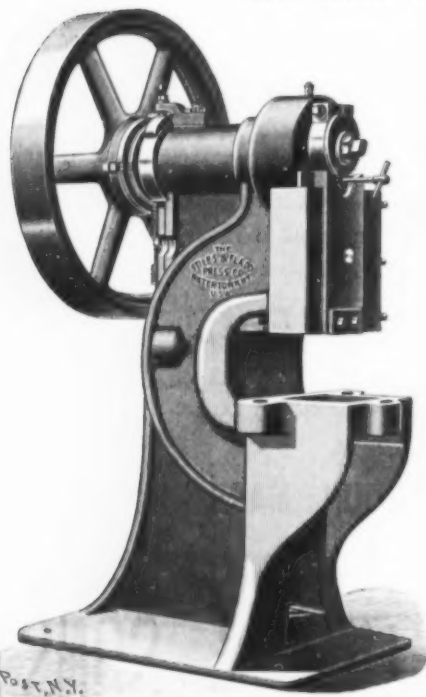
**POWER PRESSES
DROP HAMMERS
DIES AND**

Special Machinery
for Sheet Metal.

Adjustable
Incline
PRESSES.

Punching
and Forming
Presses.

Foot and
Screw
PRESSES.



No. 3 Punching Press.



No. 19 Adjustable Incline Press.

LOBDELL CAR WHEEL CO.

WILMINGTON, DEL.

Established
1836.

MANUFACTURERS OF

Chilled Wheels

of all descriptions, from 8 to 50 inches in diameter.

Capacity, 500 Wheels Per Day.

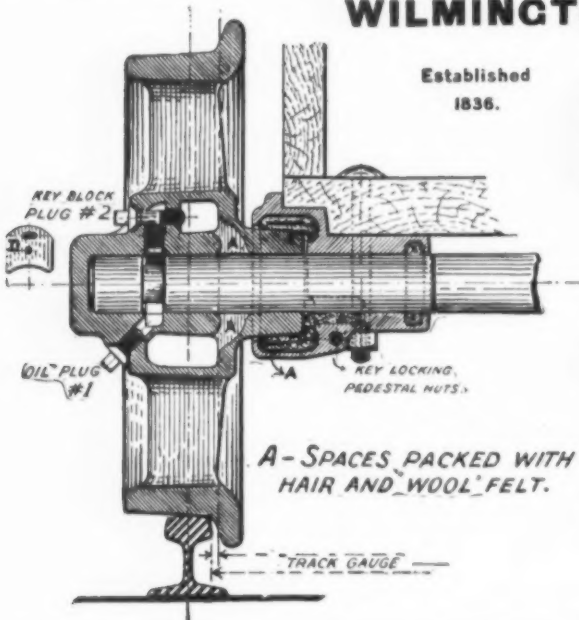
SOLE MAKERS OF THE

**Faught Patent Closed Hub
Self-Oiling Chilled Wheels,
FOR MINE CARS, ETC.**

UNRIVALED AS TO

Exclusion of Dust, Retention of Oil,
Perfect Lubrication, Easy Draft,
Durability, Strength,
Efficiency, Economy.

CATALOGUE FURNISHED ON APPLICATION.



A - SPACES PACKED WITH
HAIR AND WOOL FELT.

TRACK GAUGE

E. W. BLISS CO.

137 Plymouth St.,
BROOKLYN, N. Y.

CHICAGO:
36 W. Washington St.

400 page catalogue of our

PRESSES

Dies, Shears, Drop Hammers
and Special Machinery

FOR WORKING

SHEET METAL

Owners of

The Stiles & Parker Press Co. Correspondence
Manufacturers of the Waldron Friction Clutches. Solicited.



**SHEET IRON WORKERS!
WAGON MAKERS!**

HAVE
YOU
SEEN
OUR

Drill Press?

Write for Circulars.

THE GLOBE MACHINE WORKS,

137 & 139 W. 2nd St., Cincinnati, O.

PERFORATED SHEET METALS

FOR SCREENING

Coal, Coke, Ore and Rock.

PHOSPHATE SCREENS.



COTTON SEED SCREENS.

THE HENDRICK MFG. CO., LTD.
CARBONDALE, PA.



WALKER & ALLAN

MACHINE WORKS,

BUILDERS OF

Power and Lever Punches.

Special Machines Made to Order.

WALKER & ALLAN MACHINE WORKS,
Write for Prices. Box 74, Lansing, Mich.

Wet Tool Grinder.



Runs an Emery or
Corundum Wheel, 14
inch. in diameter and
2 inches thick.

Has no Pumps to get
out of order.

Manufactured by

C. N. CADY,

CANASTOTA, N. Y.

STEEL CASTINGS

FROM 1 TO 40,000 POUNDS WEIGHT
Of Open Hearth, or Chester Steel.
True to Pattern, Sound, Solid.

Gearing of all kinds, Crank Shafts, Knuckles for Car Couplers,
Cross Heads, Rockers, Piston Heads, etc., for Locomotives.

STEEL CASTINGS OF EVERY DESCRIPTION.

CHESTER STEEL CASTINGS CO.

Works, Chester, Pa. Office, 407 Library St., Phila., Pa.

THE COBURN PATENT TROLLEY TRACK Barn Door Hangers.



Impossible for the Door to JUMP the track. Very simple and cheap to apply.

THE COBURN TROLLEY TRACK MFG. CO., - HOLYOKE, MASS.

Send for Book.

F. H. DAVIDSON & CO., Baltimore, Md., Southern Sales Agents.

American Steel & Wire Co.



PITTSBURGH, PA.

... SUCCESSOR TO ...

Consolidated Steel & Wire Co.

I. L. Ellwood Mfg. Co., De Kalb, Ills.

American Wire Nail Co., Anderson, Ind.

H. P. Nail Co., Cleveland, Ohio.

American Wire Co., Cleveland, Ohio.

Salem Wire Nail Co., Salem, Ohio.

LARGEST MANUFACTURERS IN THE WORLD OF

**Barb Wire, Plain Wire, Wire Nails, Wire
Rods, Fence Staples,
AND
WOVEN WIRE FENCING.**

Quality of Goods and Quick Shipment Guaranteed.

LOCATION OF FACTORIES:

Allentown, Pa.

Pittsburgh, Pa.

Beaver Falls, Pa.

Cleveland, Ohio.

Salem, Ohio.

Findlay, Ohio.

Anderson, Ind.

Joliet, Ills.

De Kalb, Ills.

St. Louis, Mo.

Southern Offices and Warehouses:

LOUISVILLE, KY.

NEW ORLEANS, LA.

STEEL CHATTANOOGA STEEL ROOFING CO.

Manufacturers, CHATTANOOGA, TENN.

ROOFING

Celebrated Crowl's Patent.
CORRUGATED IRON
And 12 other styles.
Eave Trough, Conductor Pipe and Roof Paints. WRITE FOR PRICES.

ART STAINED GLASS.—PAPIER MACHE.

HIGH CLASS WORK ONLY.
FIGURE AND MEMORIAL WINDOWS
OUR SPECIALTY.

CAPITALS, BRACKETS,
MOULDINGS, FESTOONS ETC., ETC.
SOLE AGTS. FOR CHAS. EMMEL.

L. GROSSE ART GLASS WORKS, 922 Penn Ave., PITTSBURGH, PA.

Natural Asphalt Roofing

As made by us, has been successfully used for over twenty years in this country and Canada, and is the outgrowth of over half a century's experience in felt and gravel roofing in both warm and cold climates.

The advantage of this roofing over the various prepared or ready roofings, composed wholly or in part of coal-tar materials, consists in the fact that natural asphalt is a far more durable and stronger substance than coal-tar.

It is of such a nature that it will not dry up and become brittle by evaporation under exposure to the heat of the sun, and, for this reason, the roofing retains its strength and pliability almost indefinitely, instead of becoming hard and cracking as do coal-tar roofings.

Natural Asphalt Ready Roofing makes a substantial and durable roof of light weight, and it is the best article in the market for re-covering old shingle and tin roofs, as well as for covering new roofs at a low cost.

This roofing is put up in rolls ready for application and can be applied by any person of ordinary intelligence.

Let us send you samples of this roofing which has been in use under the most trying conditions for from 12 to 15 years.

We contract for laying roofing and also

Asphalt Floors, Sidewalks, Driveways, &c.

Warren Chemical & Mfg. Co.

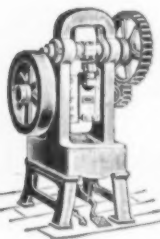
82 Fulton St., New York City.



THE TOLEDO MACHINE & TOOL CO.

TOLEDO, OHIO.

MANUFACTURERS OF



Power Punching
Drop
Trimming
PRESSSES
Stamping
Riveting
Embossing

Presses with Automatic Feeds. Chain Presses and Machines for Working Bar and Sheet Metals.

COMPLETE OUTFITS FOR BICYCLE STAMPINGS, CAN MAKING, &c.
Send for 1897 Catalogue.

Sole European Agents—SELIG, SONNENTHAL & Co., London.
Sole Agent in Germany—E. SONNENTHAL, JR., Berlin, Neue Promenade 5.
Pacific Coast Agent—V. J. A. RAY, San Francisco, Cal.

LUDLOW SAYLOR WIRE CO.

Northeast Corner Fourth and Elm Streets, ST. LOUIS, MO.

ARTISTIC METAL WORK

In Brass, Wire and Wrought Iron. Elevator Enclosures and Cabs, Bank and Office Railings, Grilles, Fences, etc.



WIRE RAILING

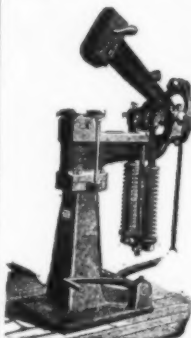
AND
ORNAMENTAL WIRE WORKS
DUFUR & CO.

311 North Howard Street, BALTIMORE.
Wire Railing for Cemeteries, Lawns, Gardens, Offices and Balconies; Window Guards, Tree Guards, Wire Cloth, Sieves, Fenders, Cages, Sand and Coal Screens, Iron Bedsteads, Chairs, &c.



ELLIS & HELFENBERGER,
101 Senate Ave. INDIANAPOLIS, IND.

The Standish Riveter



for
PATCHING
COTTON TIE
BANDS.

Indispensable to every
compressman in oper-
ating a compress.

Manufactured by
CAPITAL CITY
MACHINE WORKS,
120 N. Spring Street,
COLUMBUS, O.

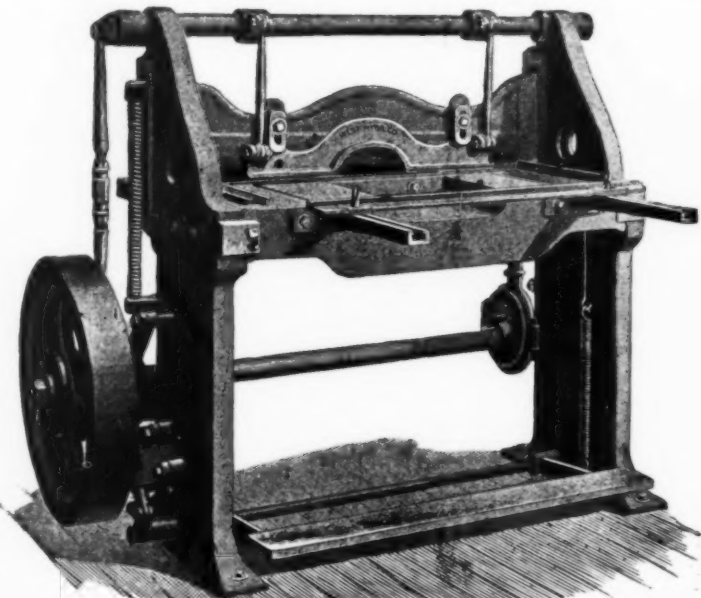
Send for Circular.

COMBINED PUNCH and SHEARS

Different styles for Squaring, Slitting and Trimming.
All sizes. Automatic
Self-Opening
Bending Rolls
(revolutions)
Also Angle Iron Bend-
ing Rolls, Squaring
Shears, etc., machines
for working Sheet
Metal.



BERTSCH & CO.
CAMBRIDGE CITY, IND.



The Shears are made in all sizes up to 4 feet long; longer than 4 feet with back gear; are designed for cutting No. 16 iron and lighter. The parts are exceptionally strong, the legs and guides for cross-heads are in one solid piece. They are provided with improved clutch and automatic hold-down, also with front, bevel, back and side gauge.

Write for Discounts and Catalogue of

Power Presses. Double Seamers.

Adjustable Punching and Forming Presses.

Foot and Screw Press. Foot and Power Shears.

WEST MANUFACTURING CO.,

7th and Hudson Streets,

BUFFALO, N. Y., U. S. A.

PITTSBURGH PLATE GLASS CO.

LARGEST PRODUCERS OF PLATE GLASS IN THE WORLD.

Manufacturers of Polished Plate and Silvering Plate of all thicknesses.
SKYLIGHT AND FLOOR GLASS. GLASS BENDING A SPECIALTY.

Pittsburg: Carnegie Building. New York: 49-53 LaFayette Place. Boston: 30 Sudbury St. Philadelphia: 012-1018 Filbert St. Chicago: 442-452 Wabash Ave. Cincinnati: 115-117 W. Front St. St. Louis: 12th & St. Charles Sts. Minneapolis: 124-128 N. 3d St. Detroit: 138-140 Jefferson Ave

T.H. BROOKS & CO. CLEVELAND, O.
FLOOR & SIDEWALK LIGHTS.
OF EVERY DESCRIPTION.
SEND FOR CATALOGUE.

Conductor Pipe
ELBOWS SHOES...
Round or Square—Galvanized. Write for Special Circular and Prices.
THE CINCINNATI CORRUGATING CO.
BOX 377 PIQUA, OHIO.

THE EXPANDED METAL

SYSTEM OF FIRE-PROOFING covers a construction of light concrete floors with imbedded sheets of heavy metal insuring strength for any requirement.

Expanded Metal Steel Plastering Lath

Is the standard metal lath in all markets. Used by the United States Government and all first-class architects throughout the world. Write for illustrated book containing full information, free by mail.

Northwestern Expanded Metal Co., Chicago
Central Expanded Metal Co., Pittsburgh
Eastern Expanded Metal Co., Boston
Manhattan Concrete Co., New York and Boston
New York Expanded Metal Co., New York
Southern Expanded Metal Co., Washington
Expanded Metal Fireproofing Co., Chicago
Merritt & Company, Philadelphia

THE PHILADELPHIA STEEL ROOFING CO.
MANUFACTURERS OF
STEEL ROOFING AND CORRUGATED IRON.
914, 916 & 918, BEACH ST.
PHILADELPHIA PA.
SEND FOR CATALOGUE AND PRICES.

Ironphalt Roofing

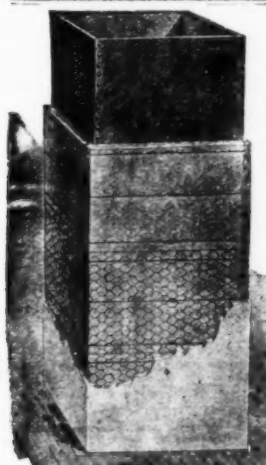
(Patent applied for.)

SPECIALTIES: 2 and 3 ply Roofing, Insulating, Building and Sheathing Papers, Asphaltum, Pitch, Roof Paints, etc. Catalogue free.

ARMITAGE MFG. CO., Richmond, Va.

ASBESTOS BUILDING AND SHEATHING FELTS. GUTTA PERCHA WIRE EDGE ROOFING

Absolutely FIRE, WATER and WIND PROOF. SEND FOR SAMPLES AND PRICES.
Empire Paint & Roofing Co. 219 North 4th Street, PHILADELPHIA, PA.



Flue covered with 1 1/4 in. sheet Fire-Felt, Hexagonal Wire Cloth and Cement Felting.

Results Assured

BY THE USE OF

Fire-Felt Non-Conducting Coverings.

Asbestos formed into felt is replete with cellular tissues and creates Fire-Felt. More confined air spaces in Fire-Felt than any other covering on the market.

ABSOLUTELY FIRE-PROOF. NOT AFFECTED BY MOISTURE. EASILY APPLIED.

Sheets for Boilers, Flues, etc., and Cylindrical Sections for Pipes.

H. W. JOHNS MANUFACTURING CO.

100 WILLIAM STREET, NEW YORK.

Philadelphia.

Chicago.

Boston.



RAW HIDE
WATER PROOF
PAPER.

TOUGH AS LEATHER.
WATER PROOF.
AIR TIGHT.
ODORLESS.

MAKES a neat, durable and permanent Covering as a Roofing or Siding at a cost not greatly in excess of ordinary roofing or siding.

C. S. GARRETT & SON,

Paper Makers,

12 and 14 Decatur Street,
PHILADELPHIA.

NATIONAL ROOFING & SUPPLY CO.

LOUISVILLE, KY.

Gravel Roofers,
Cement and Asphalt Pavers,
Building Papers,
Two and Three-Ply Ready Roofing.

Roofing Slate & Slate Black Boards

Builders, Contractors and Roofers.

Would like to correspond with you whenever you are in need of any ROOFING SLATE or SLATE BLACK BOARDS. Don't say SLATE is too expensive until you write me and ascertain what I will deliver it for f. o. b. at your station
DAVID McKENNA, Slatington, Pa.

The Celebrated Green Mountain Sea Green Roofing Slate.

Acknowledged to be the most durable Roofing Slate produced. ABSOLUTELY FIREPROOF. Secure PURE SANITARY WATER by using our slate. Manufactured only by

WILLIAMS & SCHMID, Granville, N. Y.

SLATE ROOFS

NAILS and
CEMENT.

JOHN GALT & SONS,

253 Broadway, - NEW YORK.
915 N. Y. Life Building, CHICAGO.

LOOK THE BEST.
LAST THE LONGEST.
Write for Free Book
and lowest prices.

TOOLS and
SLATE DRESSERS.

P. & B. PAPERS
WILL GIVE
THE BEST
OF PROTECTION
TO BUILDINGS
OF ALL KINDS,
NO MATTER HOW
EXPOSED.
THEY ARE MORE
EXTENSIVELY USED
WHERE GOOD
SHEATHING
AND INSULATING
ARE REQUIRED
THAN ANY
OTHER PAPERS.
PERFECTLY
AIR TIGHT AND
MOISTURE PROOF,
AND ARE STRONG,
DURABLE
AND ODORLESS.

WRITE FOR
SAMPLES AND PRICES.

THE STANDARD PAINT CO.

Sole Manufacturers

81-83 John St., NEW YORK.
Chicago Office, 189 Fifth Ave

Canvas Back

Put up in 500 and 250 sq.
ft. rolls, 36 in. wide.

Red Rope

Tin caps and nails
packed in each roll

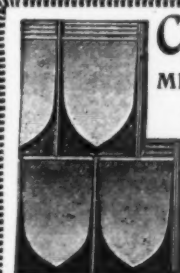
Roofing & Sheathing

Waterproof. Air Tight. Durable.

Complete line of Building and Sheathing Papers

GARRETT-BUCHANAN CO.

3, 5 & 12 Decatur St., PHILADELPHIA, PA.



Cortright

METAL...
SHINGLES

Are recognized
as the best, both
in Construction
and Material
used

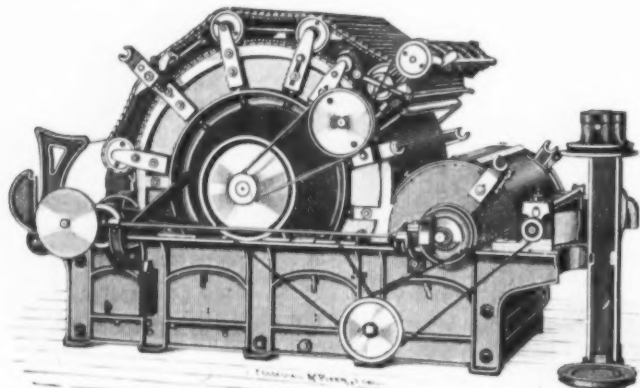
Illustrated Catalogue
Prices and Sam-
ples free.

Cortright Metal Roofing Co.

50 N. 23d St., Phila. 134 Van Buren St., Chicago.

LOWELL MACHINE SHOP

LOWELL, MASS.

Builders of Cotton Machinery,

Cards, Railway Heads, Drawing Frames, Fly Frames,
Ring Frames, Spoolers, Warpers, Slashers, Looms,
Twisters, Reels and Cloth Room Machinery.

PLANS FOR COTTON MILLS.

LOOMS

The SEACONNET MILLS, Fall River, wove in 301 days of 10 hours each, 14,329,219 yards of 64x64 goods on the 928 of our "NEW HIGH-SPEED LOOMS," a daily average of 31 3-10 yards per loom per day.

Cotton and Silk Weaving.

KILBURN LINCOLN & CO., FALL RIVER, MASS.

BRANSON KNITTING MACHINES

X AUTOMATIC, PLAIN AND FAMILY.

Ribbers single and double feed. Write for full particulars.

Branson Machine Co., 306 St. John Street, Philadelphia, Pa.

Steam Engines and Boilers.

Ice Machines.

Open Hearth

Steel Foundry

Equipment.

Water Works.

COTTON COMPRESSES

STEAM AND HYDRAULIC.

THE VULCAN WORKS, Chester, Pa.

Rolling Mill Work.
Valves and Cocks
For Heavy Pressure
Cranes and
Accumulators.
Steam, Water and
Ammonia Fittings.
Iron, Brass and
Steel Castings.

Reeds and Harnesses

WRITE FOR PRICES.

J. A. GOWDEY & SON,

PROVIDENCE, R. I.

ALSO CHICOPEE, MASS.

Sixty Years Established.

QUEEN CITY SUPPLY CO.

Puchta, Pund & Co. PROPRIETORS.

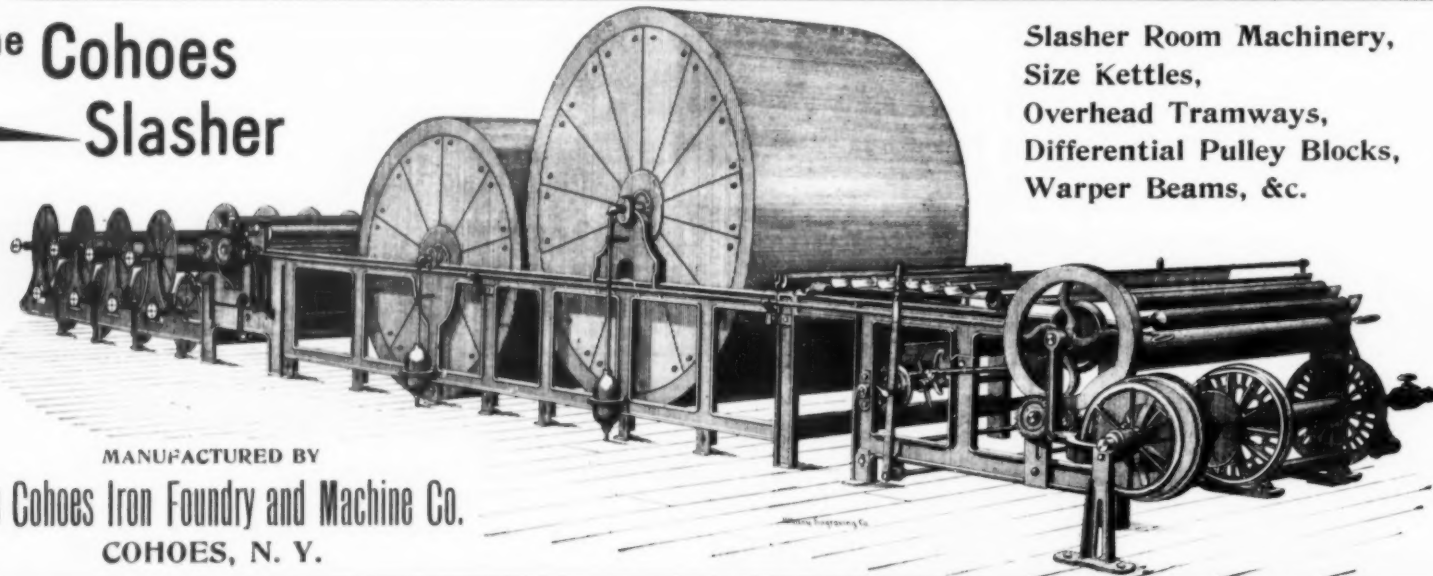
Nos. 161, 163 and 165

West Pearl Street.

CINCINNATI, OHIO.

DEALERS IN **Factory, Machine Shop and Mill Supplies.**

Agent for B. F. Sturtevant Co., Blowers and Exhausts; Boston Belting Co., Rubber Goods of all kinds; Jewel Belting Co., Leather Belt; Jno. A. Roeblings' Sons, Wire Rope; Grant Corundum Wheel Co., Emery Wheels; Magnolia Metal Co., Magnolia Rabbitt Metal.

The Cohoes Slasher

MANUFACTURED BY

The Cohoes Iron Foundry and Machine Co.
COHOES, N. Y.

Slasher Room Machinery,
Size Kettles,
Overhead Tramways,
Differential Pulley Blocks,
Warper Beams, &c.

When a Loom = = = Like the NORTHROP

SEE THESE LOOMS RUNNING AT THE

Tucapau,
Lockhart,
Steele's Mills,
Whitney,
Meridian,

Gaffney,
Spartan,
Abbeville,
Victor,
Granby,

Pelzer,
Henrietta,
Henderson, (N. C.)
Wilmington,
and elsewhere.

At the same time consider that we are the largest manufacturers of Spindles, Spinning Rings, Separators, Warpers, Spoolers, Temples, etc., if interested in those lines.

Can be had, the old style of common looms are a severe handicap to their owners. Delay in changing means a loss of profit.

The more competition the more necessity for the latest and best equipment.

THE DRAPER COMPANY, Hopedale, Mass.**Latest Patented Improved**

BUILT BY THE
Carver Cotton Gin Company,
EAST BRIDGEWATER, MASS.

We have made
the famous
Carver Gin
84 years.

We make
Cotton Seed
Hullers,
Linters, Gin
Saw Filing
Machines,
Saw Gummers.

Nine-tenths of the Linters
of the United States
are of our make.

COTTON SEED LINTER.

CHARLOTTE MACHINE COMPANY,

Sole Southern Agents for

Pettee Machine Works,

NEWTON, UPPER FALLS, MASS.

Manufacturers of

**Revolving Flat Cards,
Coiler Railway Heads,
Coiler Drawing Frames.**

H. S. CHADWICK, President and Treasurer.

CHARLOTTE, N. C.

ENGINEERS, CONTRACTORS

and Dealers in

COTTON MACHINERY,

and

COTTON MILL EQUIPMENT,**Electrical Machinery and****Electrical Supplies.**

Also Agents for

A. T. ATHERTON MACHINE CO., Manufacturers
of Pat. Cotton Openers, Opener Feeders and Lappers.

FALES & JENKS MACHINE CO., Manufacturers
of Spinning and Twisting Machinery, with Draper
No. 2 and Sherman Spindles.

THE CORLISS STEAM ENGINE CO., Corliss
Engines, High-Pressure, Triple Expansion, Com-
pound and Condensing. Boilers, Heaters and Pumps.

JONES & LAUGHLIN'S Cold Rolled Steel Shafting,
Compression Couplings, Hangers, Pulleys, Etc.

DELAHUNTY DYEING MACHINE CO.'S Dyeing
Machines, for Dyeing Raw Stock, Cotton or Wool,
Hosiery and Knit Underwear.

DRYING MACHINERY, for Drying All Kinds of
Stock, Cotton, Wool, Yarns, Hosiery, Underwear
and other materials.

HYDRO EXTRACTORS, Engine Driven or Belt
Driven.

DAYTON GAS ENGINE AND MFG. CO.'S Gas
and Gasoline Engines.

Correspondence solicited in regard to all mat-
ters pertaining to our business.

Sole Southern Agents for

Easton & Burnham Machine Co.

PAWTUCKET, R. I.

Manufacturers of

**Improved Upright Spoolers,
Cop, Skein or Bobbin,
Doubling Spoolers,
New Self-Oiling Spooler Spindle.**

Sole Southern Agents for

Providence Machine Co.

PROVIDENCE, R. I.

Manufacturers of

**The "Hill" Self-Balancing Roving Frame and
with other latest improvements.**

Special Southern Agents for

B. F. Sturtevant Co.

BOSTON, MASS.

Manufacturers of

**The Sturtevant Blower System,
Heating, Ventilating and Moistening Apparatus.
Direct Current Generators and Motors.**

Sole Southern Agents for

**Crompton and Knowles
Loom Works,**

Builders of

**Looms for Weaving Fabrics of every
variety and texture.**

We Sell

The Western Electric Co's**Arc Generators****and Electrical Supplies.**

Specifications and Estimates furnished for all kinds of
Electrical Installations, including
Power Transmission.

Agents for

Curtis & Marble Machine Co.

WORCESTER, MASS.

**Cloth Shearing, Brushing, Singeing,
Rolling, Folding, Measuring
and Sewing Machines.**

Agents for

**Cohoes Iron Foundry
and Machine Co.**

COHOES, N. Y.

**Slashers, Size Kettles and Sizing
Machinery.**

Elevators and Hoisting Machinery.

AMERICAN SUPPLY COMPANY,

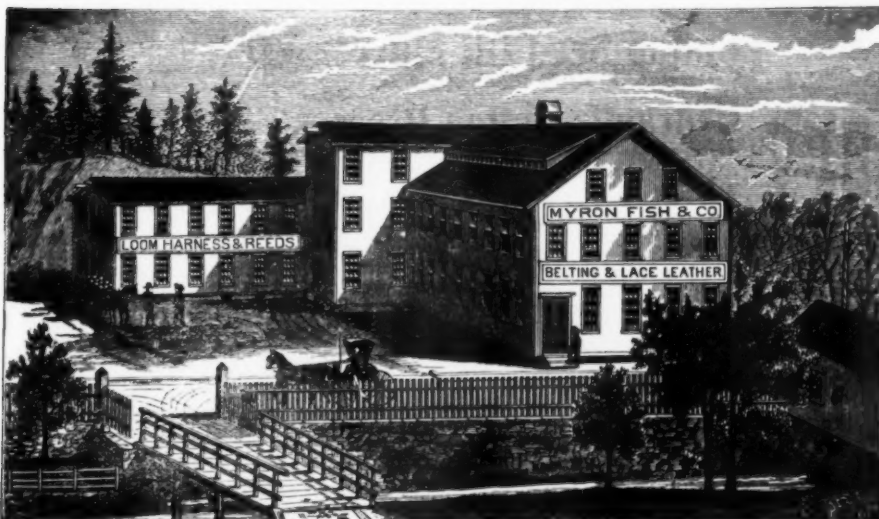
Formerly MYRON FISH & CO., of Valley Falls, R. I., and KENDRICK LOOM HARNESS CO., of Providence, R. I.

~~~~~MANUFACTURERS OF~~~~~

# Loom Harness and Reeds.

**OAK BELTING, LACE AND PICKER LEATHER,**

And Dealers in Supplies for Cotton, Woolen and Silk Mills.



Agents for JOSEPH NOONE'S SONS'

**Roller, Slasher and Clearing Cloths,**

**Calf, Sheep and Lamb Roller Skins**

**and Roll Coverers' Tools.**

WE HAVE UNEQUALLED FACILITIES FOR FURNISHING

**Shuttles and Heddle Frames,****WIRE HEDDLES AND WIRE GOODS**

Of all Descriptions.

**SPECIAL NOTICE TO WORSTED AND SILK MILLS.**—We manufacture both Worsted and Cotton-Machine Knit Mail Harness for Weaving  
Fine Worsted and Silk Goods. Also a full line of Supplies for Jacquard Looms.

**Office and Salesrooms, 11-13 Eddy Street, Providence, R. I.**

FACTORIES:

PROVIDENCE and VALLEY FALLS, R. I.

PELEG W. LIPPITT, President.

JOHN B. KENDRICK, Vice-Prest.

MYRON FISH, Treas.

JOHN A. CARTER, Sec'y

JOSEPH H. KENDRICK, General Manager.



## FAIRMOUNT MACHINE CO.

Twenty-second and Wood Sts., Philadelphia, Pa.

### TEXTILE MACHINERY.

Plans Made and Factories Completely Equipped with Driving and Machinery.

New and Improved Looms.  
Harness Motions.  
Dobby Motions.  
Warp Tension Attachment for Looms.  
Warping Mills.  
Improved Reels.  
Dyeing Machines for Warp and Piece Goods.  
Single and Double Warp Sizing Machines.  
Warp Splitting Machines.  
Plain Beaming Machines.  
Plain Beaming Machines with Pressure Attachment.  
Improved Presser Beaming Machines.

Cut Registers applicable to Beaming Machines  
Patent Cop Winding Machines  
Patent Bobbin Winding Machines.  
Plain Spoolers.  
Improved Presser Spoolers  
Four-Cylinder Napping Machines.  
Cradle and Cone Indigo Mills.  
Self-acting Wool Scouring Machines.  
Pulling Mills.  
Calendering Machines.  
Hank Twisting and Stretching Machines.  
Yarn Bundling Presses.  
Loom Beam Trucks.

### Shafting, Hangers, Pulleys, etc.

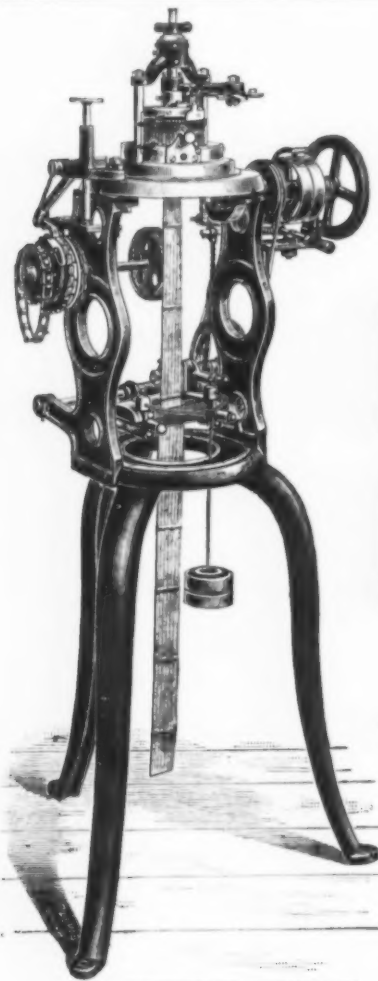
Adjustable Self-Oiling Bearings.  
Patent Couplings.  
Patent Self-Oiling Loose Pulleys.  
Patent Self-Oiling Loose Pulleys with Patent Bevel Flange.  
Improved Loose Pulley Bearings.  
Patent Friction Pulleys.  
Patent Friction Cut-off Couplings.  
Gearing.

Improved Self Oiling Angular Driving.  
Plain Self-Oiling Mule Driving.  
Patent Adjustable Self-Oiling Mule Driving.  
Vertical Shaft Transmission with Bearings which do run cool.  
Carrier and Gallows Pulleys.  
Guide or Binder Pulley Stands.  
Patent Belt Tighteners.  
Rope Transmission.

Sheave Wheels, any size required, for Hemp, Manila and Cotton Rope Driving.

### FREIGHT ELEVATORS.

Foundry, Machine and Millright Work.



AUTOMATIC RIBBERS.

ESTABLISHED 1865.

SCOTT & WILLIAMS,

BUILDERS  
OF . . .

## Knitting Machinery

WORKS:

2079 East Cumberland Street,

PHILADELPHIA,  
PA.

Cable Address—SCOWILL.

## SAVOGRAN

Cleans Wool, Mill Floors, ANYTHING.

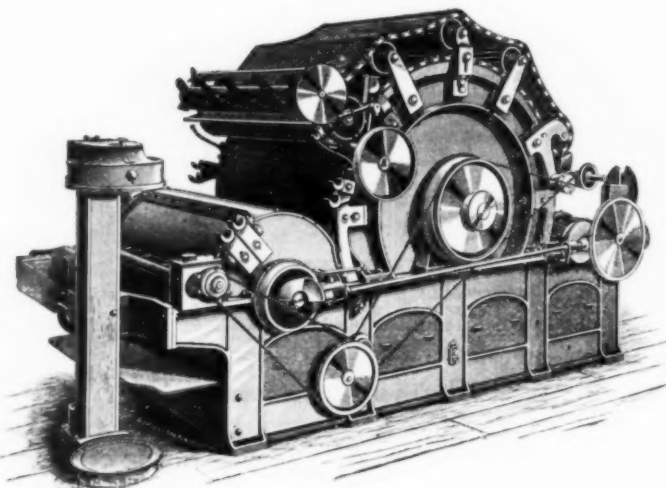
FOR COTTON AND WOOLEN MILLS.

Standard Articles for their Purposes.

INDIA ALKALI WORKS, 77 Broad Street, Boston.

## MASON MACHINE WORKS,

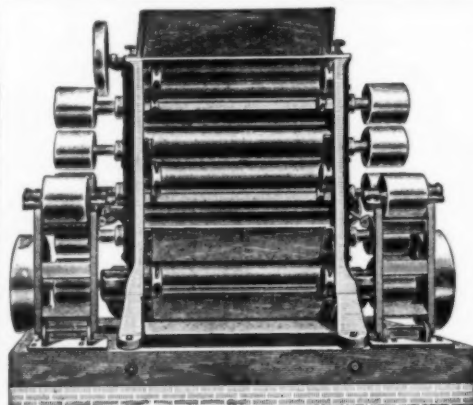
Taunton, Mass.



Revolving Flat Cards, Combers,  
Railway Heads, Drawing Frames,  
Spinning Frames,  
Mules, Looms.

SOUTHERN AGENTS:

D. A. TOMPKINS CO., - Charlotte, N. C.



BEST CHILLED  
Iron  
Crushing  
Rolls  
Belt Driven,  
FOR  
Oil Mills.

Manufactured by

G. H. BUSHNELL PRESS CO., Man'rs Oil Mill Machinery. Thompsonville, Conn., U. S. A.

### Cotton Seed Oil Mills

We are making Various Sizes, from the PLANTATION MILLS of five tons to the LARGE CITY MILL of 150 tons per day. Our Mills have all the Latest Modern Improvements in Machinery, and produce the very best results.

### Hydraulic Cotton Presses

SIMPLE, COMPACT and VERY POWERFUL. Worked either by Hand or Steam-power. Not liable to get out of order and very durable. They are the BEST BALING PRESS made for Cotton, Wool, Rags, etc.

### Threshers and Cleaners

For WHEAT, OATS and RICE. The Simplest, Cheapest and Best Made.

Information furnished upon application to

THE CARDWELL MACHINE COMPANY RICHMOND VA.

NOT CONTROLLED BY ANY COMBINATION OR TRUST.

### "THE STANDARD" SCALES

For all purposes, including R. R. Track Scales of Largest Capacity. Strictly High Grade. Send for Catalogue and list of users.

THE STANDARD SCALE & SUPPLY CO., Limited,  
Manufacturers, PITTSBURGH, PA.

### M ZIER & CO. Boiler and Sheet Iron Works.

Manufacturers of Steam Boilers, Chimneys, Breechings and all kinds of Plate and Sheet Iron Work. Stand Pipes and Self-sustaining Smoke Stacks a specialty. Estimates cheerfully furnished. Office and Works, S W. cor. Pearl and Oak Streets, NEW ALBANY, IND.



### Spark Arresters

for Thresher, Saw Mills, Planing Mills and Cotton Gin Engines.

Guaranteed to work satisfactorily on all engines that exhaust in the smoke stack.

THE SOUTH BEND SPARK ARRESTER CO.  
Office Corner Sample and Fellow Sts.  
SOUTH BEND, IND.

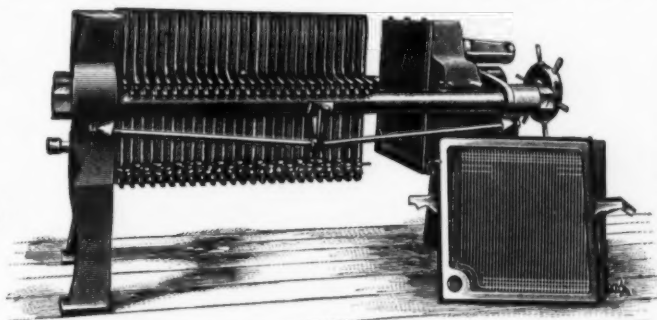
# SMITH-VAILE COTTON AND LINSEED OIL MACHINERY.

Steam Pumps.

Triplex Power Pumps.

Condensers and  
Vacuum Pumps.

Air Compressors.

Equipped with Modern Machinery  
To Produce Best Results.

## FILTER PRESSES....

For use in the production of Porcelain, Stoneware, Chemicals, Glycerine, Inks, Pharmaceutical Preparations, Pyroligneous, Phosphoric and Salicylic Acids, Earth and Chemical colors, White Lead, Whiting, Plaster, Glue, Gelatine, Graphite, Alumina, Anthracene, Berlin Blue, Bi-Carbonate of Soda, Cream of Tartar, Paraffine, Stearine and Vegetable Oils, Starch, Glucose, Sugar, Chocolate, Yeast.

... Write for Special Catalogues ...

THE STILWELL-BIERCE &amp; SMITH-VAILE CO.

General Offices and Factories:

Dayton, Ohio.

BRANCH HOUSES:

21 Light Street, BALTIMORE, MD.  
123 Liberty Street, NEW YORK.  
63 S. Canal Street, CHICAGO, ILL.  
341 Carondelet Street, NEW ORLEANS, LA.

## The American Cotton Oil Company

MANUFACTURERS AND REFINERS.

### Cotton-seed Products

Oil, Cake, Meal, Linters, Ashes, Hulls.

Cable Address: AMCOTOIL, New York. THE AMERICAN COTTON OIL COMPANY, 46 Cedar St., New York.

A. KLIPSTEIN &amp; CO., 122 Pearl Street, NEW YORK.

BOSTON. PHILADELPHIA. PROVIDENCE. CHICAGO. CINCINNATI. HAMILTON, CANADA.

## Aniline Colors, Chemicals and Dyestuffs.

DIRECT COLORS FOR COTTON DYEING.

REFINED CUTCH A. K. C.



MANUFACTURERS

Wire Brushes, Bristle Brushes,  
Iron, Brass and Steel Riddles,  
Belows, Sifting Machines,  
Chaplets, tinned and plain,  
Moulders' Cast Steel Shovels,  
Seared and Hand Ladles in Stock.

ASK FOR  
ANY  
SUPPLIES  
YOU  
WANT.

## FOUNDRIY EQUIPMENTS.

(A FEW BRANDS OF FACING.)



Finest Stove-Plate Facings.

FIRE-PROOF and RETURN FACING.

CHARCOAL, SOAPSTONE, ANTHRACITE, PLUMBAGO,  
SEACCOAL and MACHINE.

J. W. PAXSON CO.

1021 N. Delaware Avenue,

PHILADELPHIA, PA.

## SOFT STEEL

### BARS

## BILLETS

### SHEETS

## TIN & TERNE PLATE

RAILS, LIGHT  
SECTIONS  
HEXAGONS,  
TEES, ANGLES  
AND SPECIAL  
SHAPES.  
MERCHANT  
BARS  
ALL SIZES.

CORRUGATED, GAL-  
VANIZED, PAINTED  
OR PLAIN BLACK  
SHEETS.  
BLACK PLATE,  
TIN OR TERNE  
IN ALL  
GRADES.

ETNA STANDARD IRON & STEEL CO. AT BRIDGEPORT, OHIO, U. S. A.  
Works at Bridgeport and Mingo Junction, O.

## Cottonseed Oil Machinery.

Tobacco Cutting Machinery.

BRASS GOODS

for Engine Builders, Steam, Water and Gas Fitters. Write for Catalogue.

**BUCKEYE IRON & BRASS WORKS,**  
DAYTON, OHIO, U. S. A.

Advertise in the Manufacturers' Record.



THE importance of the effectual protection against corrosion of the iron and steel columns, beams and girders now used in modern construction is recognized with increased interest by most of our architects and engineers. If not made a matter of specification these important parts of bridges or buildings may be coated with useless and sometimes injurious materials.

Lawrence's Permanent Paint for iron and steel is recognized by engineers, architects, bridge builders and railway companies as a standard coating for metal of the highest class; its merit and value has been tested and proven by time, and for protection, economy and permanence it has no equal.

The manufacturers will be glad to communicate full particulars on application to justify their suggestion that all specifications for iron and steel for structural purposes should require that

"The first or shop coat of Paint shall be Lawrence's Permanent Paint No. 2050, which is to be applied as it comes from the makers without the use of any additions. The second coat after erection shall be of the same material."

W. W. LAWRENCE & COMPANY.  
Pittsburgh and Buffalo.

WM. ELLIOT.

ESTABLISHED 1876.

W. H. LOOMIS.

## THE NATIONAL PAINT WORKS, Williamsport, Pa.



Manufacture only high grade  
Lead, Carbon, Oxide, Graphite  
and Asphaltum Paints, which  
are sold at their commercial  
value.

Write for quotations, which are based on current  
cost of raw materials.

369 Atlantic Avenue, Boston.

ALDEN SPEARS' SONS & COMPANY,

Contains one of the best disinfectants known to science. Can be applied by anyone and absolutely guaranteed not to crack, peel or turn yellow with age, as will oil paint. Write for catalogue B and price list.

FIREPROOF AND WATERPROOF.

## CROWN COLD WATER PAINT,

You won't have to stand on your head to note  
the beautiful effects given by the use of our

BUT

You may have to stand on your head to read this ad.

FOR PAINTING MILLS, FACTORIES AND WORKSHOPS

Use Only Paints Based on **ZINC WHITE.**

Modern competition forces you to consider the appearance of your buildings, the health of your employees, and above all, economy in material.

Paints based on ZINC WHITE do not change color nor chalk off, are absolutely non-poisonous, and cost least, because they are the most lasting.

FREE.—Send for our practical pamphlet, "The Paint Question."

THE NEW JERSEY ZINC CO., 52 Wall St., NEW YORK.

## JANNEY, STEINMETZ & CO.

Drexel Building, PHILADELPHIA.

## Iron and Steel

Special Manufactured Shapes,  
Forgings, Turnbuckles, Etc.

STEEL BRIDGES, DOCKS, WHARVES,  
and other Special Work.

Seamless, Weldless

STEEL CYLINDERS,  
BOTTLES and TANKS

For High Pressure Gas, Compressed Air, Etc.

ALUMINUM for Steel Plants and for Other Uses.

## Covert Pants STRETCHER



Before. After.

The Covert "Pants Stretcher" restores the pantaloons to their original shape and length.

It removes all WRINKLES and BAGGING AT THE KNEES, and giving them the appearance of having just left the tailor's hands.

It also holds the pants in a convenient position for brushing and cleaning.

The stretchers cannot get out of order and can be adjusted in the pants in a few seconds.

It being applied inside the pants, it obviates all objections prominent in other stretchers.

It is made of steel wire, and being in sections, can be packed in a valise when traveling.

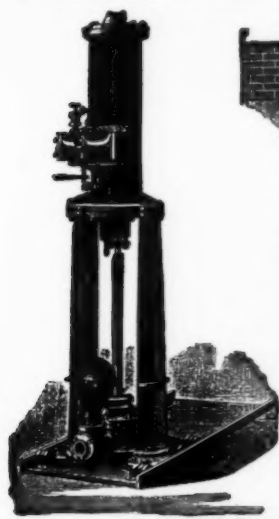
Sold by the Trade, or Sample pair sent by mail to any address, free of pos. age, on receipt of \$1.00.

MANUFACTURED ONLY BY

COVERT MFG. CO., West Troy, N. Y.



100 William Street, New York,



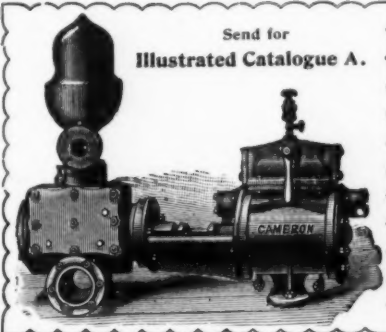
Artesian Well Pumps.



Mining Pumps

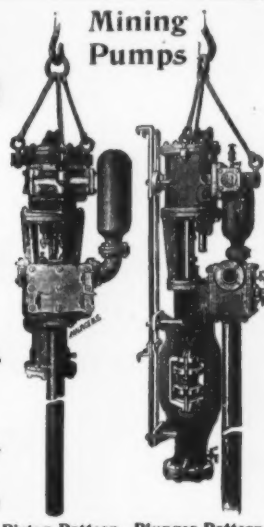
# CAMERON STEAM PUMPS.

Pumps for  
Boiler-Feeding,  
Mines,  
Refineries,  
Breweries,  
Tanneries,  
Irrigating,  
Fire Purposes  
Railroads and  
Filling Tanks.



Send for  
Illustrated Catalogue A.

SIMPLE,  
COMPACT,  
DURABLE,  
EFFICIENT.  
ADAPTED TO  
ALL PURPOSES.  
NO OUTSIDE  
VALVE GEAR.



Piston Pattern. Plunger Pattern.

CRANK,  
FLY-WHEEL  
and VACUUM

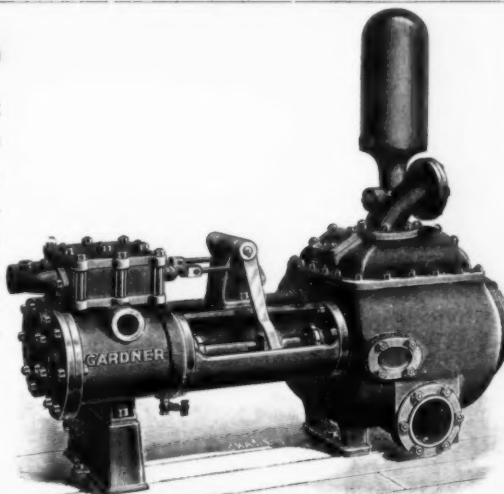
PUMPS. THE A. S. CAMERON STEAM PUMP WORKS,  
Foot of East 23d St., NEW YORK.

## Take No Chances

when buying a Steam Pump; and don't let price be the only consideration. Some pumps are dear at any price. What may seem to be a bargain may prove quite a costly experiment. With the "Gardner Pump" every element of chance is eliminated. It is made to give the very best possible results and possesses many superior features not found in other makes.

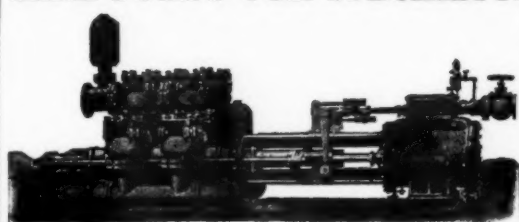
Catalogue "A" tells all about it. Write us.

The Gardner Governor Co.  
QUINCY, ILL.



The  
Best,  
Heaviest  
and  
Most  
Durable.  
Send for  
Catalog.

## MINE PUMPS OUR SPECIALTY.



Designed  
for  
Use in  
Acid  
or  
Muddy  
Water.

JEANESVILLE IRON WORKS CO., - Jeanesville, Pa.



## The PULSOMETER STEAM PUMP

"THE CONTRACTOR'S FRIEND."  
Often Imitated—Never Equaled. Over 20,000 in Use.  
RECENT IMPORTANT IMPROVEMENTS.

The Handiest, Simplest, and Most Efficient Steam Pump for General Mining, Quarrying, Railroads, Irrigating, Drainage, Coal-washing, Tank-filling, Paper Mill, Sewer and Bridge Contractors' Purposes, etc., etc. Muddy or gritty liquids handled without injury to the Pump.

PULSOMETER STEAM PUMP CO., 135 Greenwich St., New York.

Catalogue on application.

Correspondence solicited.

THE SNOW STEAM PUMP WORKS,  
BUFFALO, N. Y.

## Pumping Machinery

FOR ALL SERVICES.  
New York Office—126 Liberty Street. Philadelphia Office—506 Drexel Building.  
Baltimore Office—308 North Howard Street. Boston Office—35 Congress Street.  
Hendon & Hubbell, 61 to 69 Jefferson Street, Chicago Ill.  
Charlotte Supply Co., Charlotte, N. C., Agents for North Carolina.  
Bailey-Lobby Co., Charleston, S. C., Agents for South Carolina.  
Engle Supply & Engine Co., Agents, Kansas City, Mo.

## DEAN BROS' STEAM PUMP WORKS.



PUMPING MACHINERY FOR ALL PURPOSES INDIANAPOLIS, IND. SEND FOR CATALOGUE AND PRICES

## VALVES

Of all kinds for automatically controlling Steam, Water and Air Pressures.

SEND US YOUR PROBLEMS.

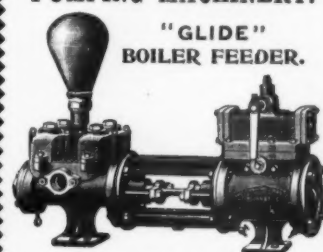
Mason Regulator Co., Boston, Mass.

THE JOHN H. MCGOWAN CO.

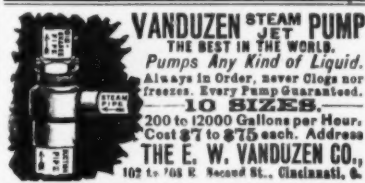
EVERY VARIETY

## PUMPING MACHINERY.

"GLIDE"  
BOILER FEEDER.



BRANCH, RICHMOND, VA. Cincinnati, O.



## VANDUZEN STEAM PUMP

THE BEST IN THE WORLD.

Pumps Any Kind of Liquid.

Always in Order, never Clogs nor

freezes. Every Pump Guaranteed.

10 SIZES.

200 to 12000 Gallons per Hour.

Cost \$7 to \$75 each. Address

THE E. W. VANDUZEN CO.,

102 to 708 E. Second St., Cincinnati, O.

## Alabama Bridge & Boiler Co.

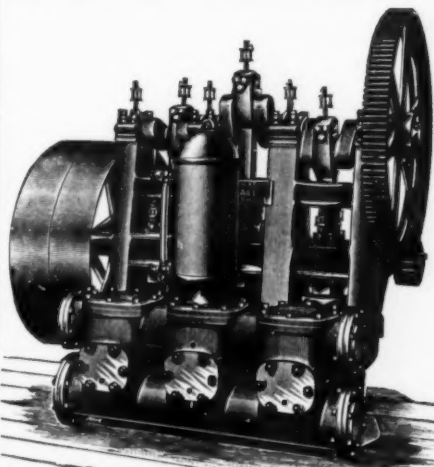
ESTIMATES FURNISHED ON

Bridges and Structural Works, Tanks, Stand Pipes, Blast Furnaces, and all kinds of Sheet Iron Work.

Avenue A and 22d St. BIRMINGHAM, ALA.

## SMITH-VAILE... STEAM AND POWER PUMPS

For All Purposes.



THIS CUT SHOWS OUR TRIPLEX PUMP.

Duplex and Single  
Steam Pumps.

Triplex Pumps,  
LATEST AND MOST  
APPROVED DESIGNS.  
SINGLE and  
DOUBLE ACTING.

Single Condensers.  
Air Compressors.

HEAVY PRESSURE MINING PUMPS, Steam and Electrical.

OUR NEW CATALOGUE "C" GIVES PARTICULARS.

## THE STILWELL-BIERCE & SMITH-VAILE CO.

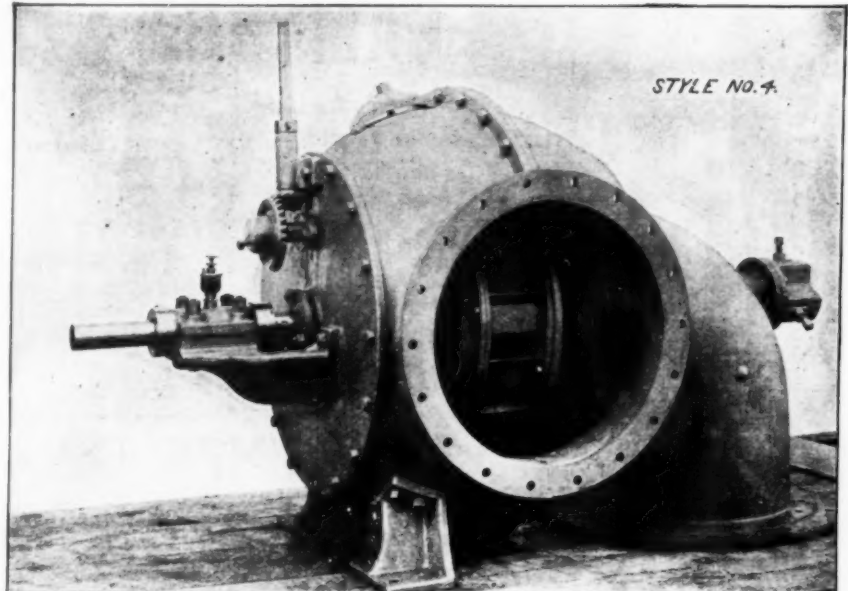
General Offices and Factory: DAYTON, OHIO.

BRANCH HOUSES:

21 Light Street, BALTIMORE, MD.  
83 S. Canal Street, CHICAGO, ILL.

123 Liberty Street, NEW YORK.  
341 Carondelet Street, NEW ORLEANS, LA.





**Every Appliance for Transmitting Power.**

Prices quoted on Receipt of Specification.

Plans and Estimates Furnished for Complete Power Plants.

# CHRISTIANA MACHINE CO.

MANUFACTURERS OF THE

.....CHRISTIANA, PA.

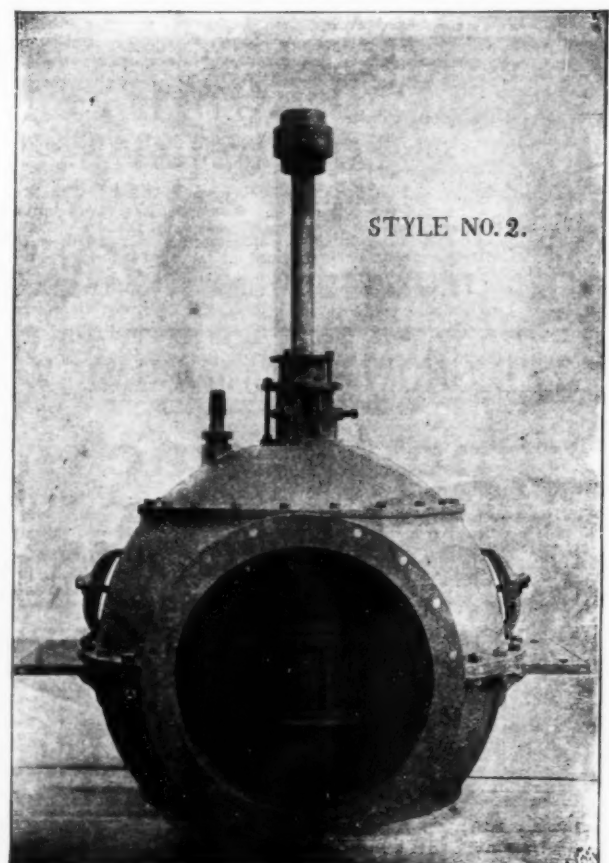
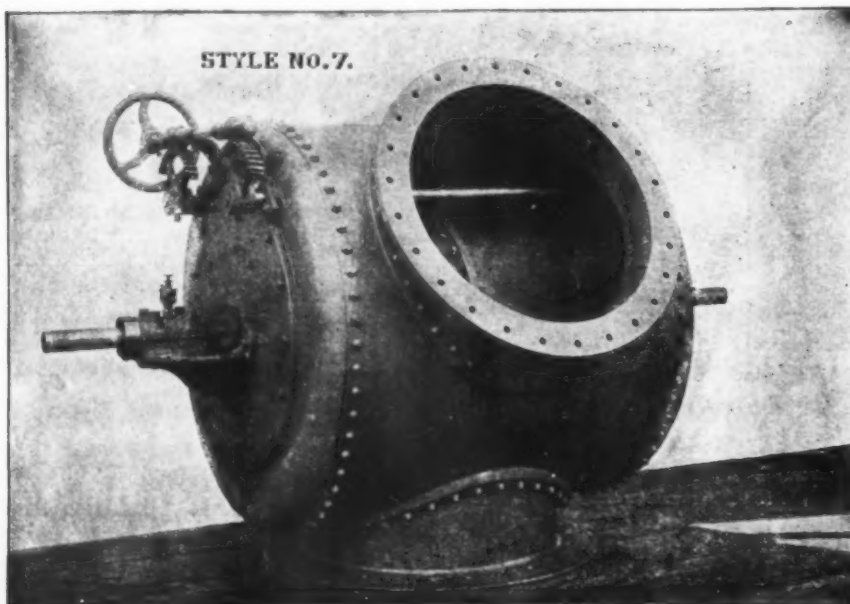
## Balanced Gate Turbine Wheel

GEARING, SHAFTING, PULLEYS,  
FRICTION CLUTCHES, Etc., Etc.

Send for Gearing Catalogue.

Correspondence Solicited.

Mention This Paper. Send for Illustrated Water Wheel Book.



# WATER WHEELS

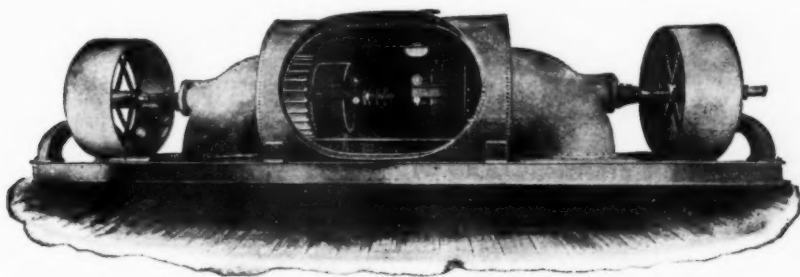
## and MOTORS

Impulse Wheels or Turbines to Suit Requirements of every case; Large Mills, Transmission, Railway and Lighting Plants or Power in Small Units for Domestic or other purposes.

### American Impulse Wheel Company of New York,

Catalogue, Drawings and Quotations sent on application.

120 Liberty Street, New York.



This Engraving Represents a Pair of 45-inch McCormick Turbines

Mounted on Horizontal Shaft, Developing 500 Horse-Power, Recently Furnished the Augusta Factory, of Augusta, Ga., for Operating Their Cotton Mill.

**S. MORGAN SMITH CO.**  
HYDRAULIC ENGINEERS,  
YORK, PA.

MANUFACTURERS OF

### McCormick Turbines

Power Transmitting Machinery  
and Flume Work.

Estimates furnished for Complete Power Plants and Results Guaranteed

Some of our Recent Southern Customers. H. P.  
The Clifton Manufacturing Co., Clifton, S. C. .... 3560  
The John P. King Mfg. Co., Augusta, Ga. .... 2700  
Anderson Wat., Light & Pow. Co., Anderson, S. C. 2300  
The Mayo Mills Co., Mayodan, N. C. .... 800  
The Roanoke Mills Co., Roanoke Rapids, N. C. .... 780  
The Aiken Manufacturing Co., Bath, S. C. .... 700  
The Steele Mills Co., Rockingham, N. C. .... 500  
Reedy River Mfg. Co., Reedy River, S. C. .... 500  
Augusta Factory, Augusta, Ga. .... 500  
Ida Varn Mills, Laurel Hill, N. C. .... 430  
The Roberdel Mfg. Co., Rockingham, N. C. .... 400



### WATER WHEEL

150 Styles and Sizes. Upright and Horizontal.  
**36 YEARS' BUSINESS**  
affords every facility for adapting them to  
**ELECTRIC, MINING AND MANUFACTURING**  
purposes. Easy working balanced gate, and fine regulation. We guarantee highest power, with smallest quantity of water, at full and part gates. Successfully operating under heads of 2 to 400 feet. Write us for fine pamphlet and state your wants.

**THE JAMES LEFFEL & CO.**  
SPRINGFIELD, OHIO, U. S. A.

**R. D. WOOD & CO.** ENGINEERS, IRON FOUNDERS, MACHINISTS,  
No. 400 Chestnut Street, PHILADELPHIA, PA.  
FOUNDRIES AND WORKS: Millville, N. J., Florence, N. J., Camden, N. J.  
Constructors of GAS AND WATER WORKS.

Manufacture Every **CAST IRON PIPE.**

Description of Special Castings, Cutting In Specials.  
**MATHEW'S SINGLE AND DOUBLE VALVE FIRE HYDRANTS.**  
Eddy Valves, Valve Indicator Posts.  
**GAS HOLDERS AND GAS MACHINERY,** Hydraulic Cranes, Presses, Lifts, etc. Turbine and Water Power Pumps. Heavy Special Machinery. Sugar House Work.

**HALL STEAM PUMP CO.,**  
BUILDERS OF **PUMPS** FOR ALL PURPOSES **AIR COMPRESSORS**  
PITTSBURG, PA.  
FOR EVERY SERVICE.

### THE LUDLOW VALVE MFG CO.

SEND FOR CATALOGUE.

TROY, N. Y., U. S. A.

MANUFACTURERS OF

**Valves and Fire Hydrants,**

DOUBLE AND SINGLE GATE VALVES,

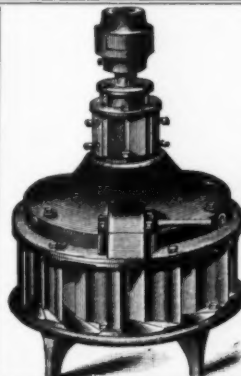
1/2-inch to 60-inch,

FOR LIGHT AND HEAVY PRESSURE,

ALSO

**Vertical and Horizontal Check Valves,**

Foot Valves, Air Valves, and Yard and Wash Hydrants.



### BURNHAM TURBINES...

Upright and Horizontal

Guaranteed to give the most power for least amount of water used of any wheel on the market.

#### SPECIAL ANNOUNCEMENT.

NORRISH FOUNDRY & MCH. CO.,  
Glen Rock, Pa.

BURNHAM BROS.,  
York, Pa.

The above firms having consolidated, the firm name hereafter will be

**NORRISH, BURNHAM & CO., Inc.**

**SPECIALTIES**—Burnham New Improved Standard Turbine, Norris Roller Mills, Corn and Feed Mills, Regrinding and Corrugating Rolls, Power Transmitting Machinery.

Main Office and Works, Norrish, Burnham & Co., Inc., Glen Rock, Pa.

### RAND AIR COMPRESSORS

For All Purposes and of All Sizes.

**SIMPLE. DURABLE. ECONOMICAL.**

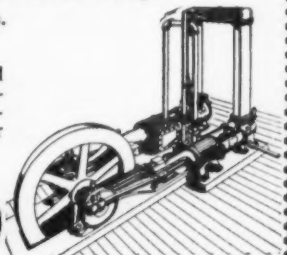
Our DUPLEX COMPRESSOR, Compound Air Cylinders, with Inter-Cooler and Compound Steam Cylinders, with Meyer Cut-off Valves, is the best construction for small and medium sizes.

Don't forget our ROCK DRILLS.

**RAND DRILL CO.**

100 BROADWAY, NEW YORK.

Send for Catalogue.



### CHAPMAN VALVE MFG. CO.

MANUFACTURERS OF

**STEAM, GAS and WATER VALVES and GATES.**

**FIRE HYDRANTS**

With or without Independent Valves.

All Valves and Hydrants Furnished with Babbitt Metal Seats and Non-Corrosive Working Parts.

Send for Illustrated Descriptive Catalogue and Prices. All Work Guaranteed.

All Genuine Chapman Valves bear our Name, Trade-Mark and Monogram.

General Office and Works: INDIAN ORCHARD (Springfield), MASS.

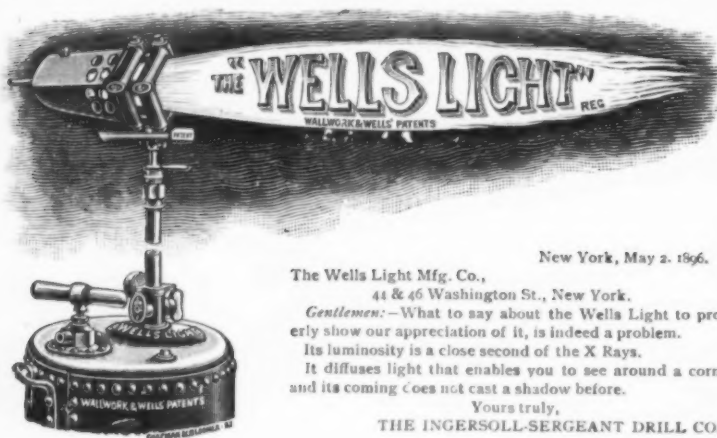
Treasurer's Office: 78 KILBY ST., BOSTON.

Chicago Office: 14 N. CANAL ST.

New York Office: 26 PLATT ST.







The Wells Light Mfg. Co.,

44 & 46 Washington St., New York.

Gentlemen:—What to say about the Wells Light to properly show our appreciation of it, is indeed a problem. Its luminosity is a close second of the X Rays. It diffuses light that enables you to see around a corner and its coming does not cast a shadow before.

Yours truly,

THE INGERSOLL-SERGEANT DRILL CO.

New York, May 2, 1896.

800 to 2,000 Candle Power from Kerosene Oil.

PORTABLE. SELF-CONTAINED. AUTOMATIC.  
UNAFFECTED BY WEATHER.

**12,000**  
... IN USE ...

Especially adapted for Contractors, Quarries,  
Shovels, Railroad Construction, Dredges,  
Bridge and Dock Builders, Water Works,  
Brick Yards and Coal Docks.

400 Railroads and over 500 Contractors now use the  
**WELLS LIGHT.**

**The Wells Light Mfg. Co.**

EDWARD ROBINSON, Sole Proprietor.

Cor. Washington and Morris Streets, NEW YORK.

WRITE FOR CIRCULAR.

## THE ROBINSON OILS

"they lubricate more, and outlast other oils."

High-Grade,  
Cylinder, Engine, Spindle,  
Dynamo Oils.

Oils for all types of Machinery.  
GREASES.

WM. C. ROBINSON & SON,

217 South Street,

BALTIMORE, MD.

## Nickel Plating Outfits.

POLISHING MACHINERY.  
CHEMICALS.  
DYNAMOS.

THE HANSON & VAN WINKLE CO.  
CHICAGO. NEWARK, N. J.

"ADDRESS DEPARTMENT W"

R. S. DODSON, Proprietor.

R. A. DODSON, Manager.

## New Atlantic Hotel

Rates, \$2.50 to \$4.00.

NORFOLK, VA.

THE  
WEIR FROG CO.  
CINCINNATI, O.  
FRED. C. WEIR  
PRES.

SOLE MANUFACTURERS OF

**FRED. C. WEIR'S**

IMPROVED RIGID & SPRING FROGS, CROSSINGS,  
SINGLE & THREE THROW SPLIT SWITCHES,  
FIXED & AUTOMATIC SWITCH STANDS, STEEL  
DIE FORMED RAIL BRACES, SWITCH FIXTURES, ETC.

CABLE & ELECTRIC  
TRACK WORK  
FROGS, SWITCHES,  
CROSSINGS, CURVES,  
RAIL CHAIRS  
ETC.

BALTIMORE, CHESAPEAKE AND RICHMOND STEAMBOAT COMPANY.  
U. S. Mail Steamers Atlanta and Charlotte from Pier 19 Light Street.

### "CHESAPEAKE LINE,"

For the South.  
Leave daily (except Sunday), at 5:30 P. M. connecting at Old Point Comfort with C. & O. Ry., and at Norfolk with Atlantic Coast Line, Southern Railway, Atlantic and Danville Ry., Norfolk and Western Ry., Norfolk and Southern R. R., and Norfolk, Virginia Beach and Southern R. R. for all points South and West.

### "YORK RIVER LINE,"

For West Point and Richmond.  
Leave Baltimore every Tuesday, Thursday and Saturday at 5 P. M. Through tickets to all points. TICKET OFFICE, 111 E. Baltimore St. and Southern Ry. Office, corner Baltimore and Calvert Sts., where reservation for Staterooms can be made and baggage checked.

GENERAL OFFICES, 330 Light Street.  
REUBEN FOSTER, General Manager.  
E. J. CHISM, General Ticket Agent.

**WE ARE  
HIGH GRADE  
ENGRAVERS  
BY EVERY PROCESS**

**FINE MACHINE ENGRAVING  
A SPECIALTY.  
PLACE NO ORDERS  
TILL YOU CORRESPOND  
WITH US.**

**WE ILLUSTRATE CATALOGUES  
COMPLETE, OR GET OUT SINGLE  
CUTS ON SHORT NOTICE**

**THE  
BROWN-BIERCE  
COMPANY.  
DAYTON, OHIO.**

### ATLANTIC TRANSPORT LINE. NEW YORK, PHILADELPHIA and BALTIMORE to LONDON direct.

|                | Tons. | Tons.      | Tons. |
|----------------|-------|------------|-------|
| Massachusetts, | 7600  | Minnesota, | 5000  |
| Manitoba,      | 7600  | Maryland,  | 4250  |
| Mobile,        | 7600  | Missouri,  | 4250  |
| Mohawk,        | 7600  | Montana,   | 4250  |
| Mississippi,   | 5500  | Maine,     | 4150  |

BALTO. STORAGE & LIGHTERAGE CO.,  
408-409 Water Street, Baltimore.

New York, 1 Broadway. Chicago, 234 La Salle st.  
Phila., 511 Bourse. St. Louis, 307½ Pine st.  
London, 108 Fenchurch st.

### MERCHANTS & MINERS' Transportation Company.

STEAMSHIP LINES.  
For BOSTON and the EAST—Every Tuesday, Thursday and Sunday at 4 P. M.  
For PROVIDENCE and the EAST—Every Tuesday, Thursday and Sunday at 4 P. M.  
For SAVANNAH and the SOUTH—Every Tuesday and Friday at 3 P. M.  
For NEWPORT NEWS and NORFOLK—Tuesday, Thursday and Sunday at 4 P. M.  
First-class tickets include stateroom berth. Accommodation and Cuisine Unequaled. Freight Capacity Unlimited; careful handling and quick dispatch.

C. R. GILLINGHAM, Agent, Long Dock.

A. D. STEBBINS, A. T. M.

W. P. TURNER, G. P. A.

J. C. WHITNEY, T. M.

General Offices—214 E. GERMAN STREET.

### BALTIMORE STEAM PACKET CO.

OLD AND RELIABLE

### BAY LINE.

Elegant Steamers Daily, except Sunday, from UNION DOCK (foot of Concord street) at 5:30 P. M., for OLD POINT COMFORT, NORFOLK, PORTSMOUTH and ALL POINTS SOUTH. Connect at Portsmouth with Seaboard Air Line, solid train Portsmouth to Atlanta. Close connection at Weldon with Atlantic Coast Line. At Norfolk connect with Norfolk & Carolina, Norfolk & Southern, Atlantic & Danville, and Norfolk & Western Railroads, and with Old Dominion Line for Newberne and Washington, N. C. Meals on European plan. Luxurious Staterooms, Electric Lights, Steam Heat. Berths free. Reserve staterooms in advance at 120 East Baltimore street.  
Telephone 1435.

JOHN R. SHERWOOD, General Manager.  
WM. RANDALL, Gen. Fgt. and Pass. Agent.  
E. BROWN, General Ticket Agent.

Mileage  
5585

**LOCATE YOUR FACTORY  
ON THE  
Southern Railway.**

We solicit consideration of locations in the States of Virginia, North and South Carolina, Georgia, Alabama, Mississippi, Tennessee and Kentucky.

ADDRESS

**M. V. RICHARDS,**  
Land and Industrial Agent Southern Railway.

WASHINGTON, D. C.

8

States.



BELTED AND DIRECT CONNECTED GENERATORS AND MOTORS.  
LATEST DESIGNS. HIGHEST EFFICIENCY.  
**TRIUMPH ELECTRIC COMPANY,**  
CINCINNATI, OHIO.

# HELIOS ARC LAMPS.

We Make Them for All Purposes.

THEY WILL SAVE YOU DOLLARS.

The life of our lamps is greater than that of any other lamp now on the market, varying between 150 and 200 hours; 175 hours is a fair mean average. The longer the life the less your carbon bill and the smaller the expense of attendance. This is where you save dollars.

Our lamps are constructed of the very best material obtainable and with the largest factor of safety. This ensures an entire absence of repair bills. This is where you save dollars.

We Make Over 120 Styles of Enclosed Arc Lamps.

**THE HELIOS ELECTRIC CO.**

1223-1229 Callowhill Street,

PHILADELPHIA, PA., U. S. A.



## General Electric Company,

Schenectady, N. Y.

Manufacturers of the

## STANDARD ELECTRICAL APPARATUS of the World.

Sales Offices in All Large Cities of the United States.

### Canning House Machinery,

BOILERS, ENGINES, DYNAMOS and MOTORS.

Complete Electric and Steam Plants.

Manufacturers HIGH-GRADE BICYCLES.

MARYLAND MFG. & CONSTRUCTION CO.

336-342 North Street,

BALTIMORE, MD.



### COMMUTATORS

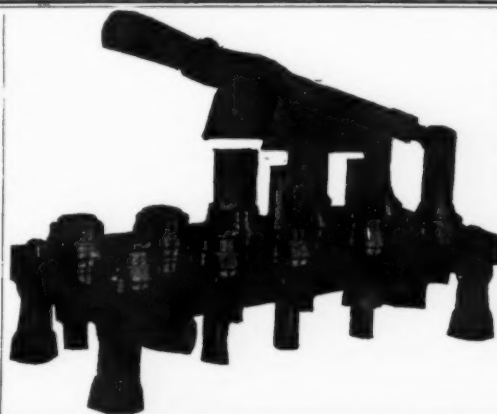
BUILT AND REFILLED  
FOR ANY MACHINE.

### COMMUTATOR SEGMENTS

Assembled Ready to Place on Shell.

We guarantee our work to be **AT** in every way, and will make good, at any time, any defect that may occur.

**F. E. HOMER & CO.,** BELDEN ST., CLEVELAND, OHIO.



Switches  
Switch Boards  
Panel Boards  
Electrical  
Specialties.

Write for Our Catalogue.

**Crouse-Hinds Electric Co.**  
600 E. Water St.,  
SYRACUSE, N. Y.

### WESTERN ELECTRICAL SUPPLY CO.

10 & 12 N. Ninth Street, ST. LOUIS, MO.

ELECTRICAL MACHINERY AND SUPPLIES.

Complete Electric Light and Power Installation.

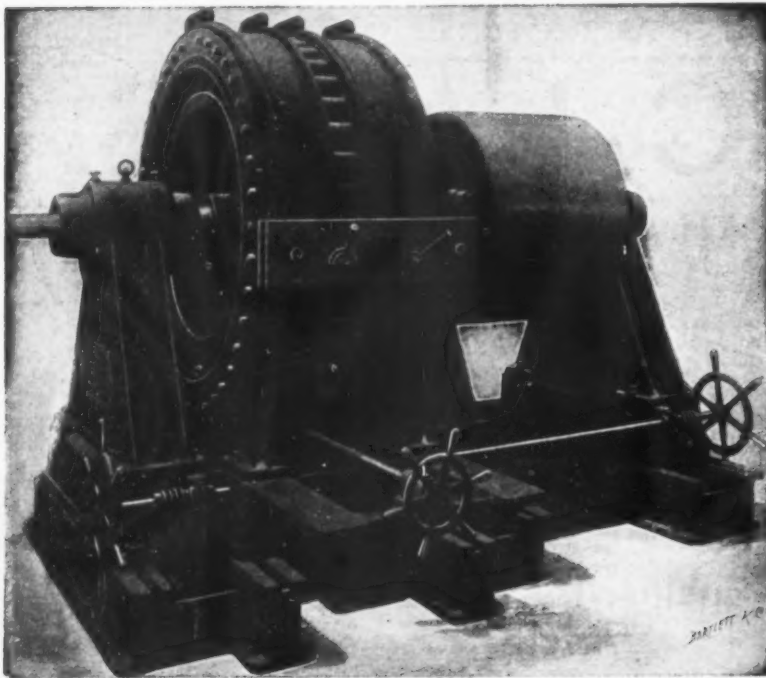
Write for Catalogue

### RECORD PRINTING HOUSE

COR. EXCHANGE PLACE AND COMMERCE STREET, BALTIMORE, MD.



# MULTIPHASE GENERATORS



## For Lighting and Power.

These machines are built for standard frequencies requiring no change in existing transformers, line equipment or interiors wiring.

Perfect design and the use of condensers overcome the difficulties of "false currents" and greatly increase the capacity of a given system of wiring.

The two-phase system being the simplest, is best adapted for new installations or additions to existing plants.

Three-phase apparatus for extremely long distances.

These dynamos mark the extreme of simplicity.

No collector rings, no brushes, no moving wire.

The rotating inductor is solid steel and iron.

No band wires to break, no wire to abraid.

The armature is stationary.

Interchangeable machine-wound coils.

Perfect ease of repair.

No dismantling of the machine to get at any part of it.

The bearings are very large and of the most approved self-oiling, self-aligning type.

The stationary field coil is wound on a copper spool, heavily insulated, and of such low self-induction that induced break-currents cannot hurt it.

## STANLEY ELECTRIC MFG. CO.

Main Office—PITTSFIELD, MASS.

### BRANCH OFFICES:

ANDERSON, S. C. NEW YORK, Rooms 1066 and 1007 Empire Bldg.  
Broadway and Rector St. BOSTON, Equitable Building.  
CHICAGO, 1906 Marquette Building. SAN FRANCISCO, 106 Market Street. ST. LOUIS, Western Elec. Supply Co.

THE NAME OF  
**WESTINGHOUSE**  
IS A GUARANTEE.

Westinghouse  
Electric & Mfg. Co.  
Pittsburgh, Pa.  
Westinghouse  
Electric.

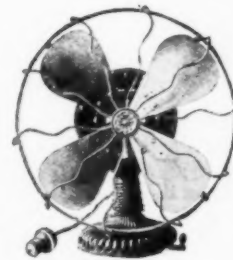
## Fan Motors,

Alternating Current Circuits. ♦ ♦

Every feature worked out with

♦ ♦ Scientific Exactness.

Immense Stock to Supply any Demand.



New York, Boston, Chicago, Philadelphia, St. Louis, San Francisco, Buffalo, Syracuse, Atlanta, Tacoma. Mountain Electric Co., Denver. For Canada, Ahearn & Soper, Ottawa. Westinghouse Electric Co., Ltd., 32 Victoria St. London.

# High Grade Incandescent Lamps.

With or Without Tips. 50, 110, 220 Volts. Of any Candle Power. Mounted in Standard Bases.

We offer our Lamps in competition with any others on the market.

**The Highest Development** in Life, Maintenance of Candle Power,  
Commercial Efficiency and Good Workmanship **Are What We Have to Offer.** ●

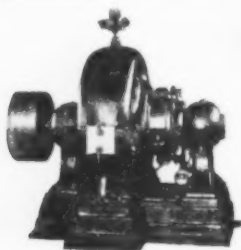
We make no claim to wonderful inventions revolutionizing the art, or to the employment of all the lamp experts available.

**SERIES LAMPS FOR ANY SERVICE OR SOCKET.**

## THE UNITED ELECTRIC IMPROVEMENT CO.

Responsible representatives wanted in all large cities.

Alleghany Ave. & Nineteenth St., PHILADELPHIA, PA.



## GENERATORS and MOTORS THE CARD ELECTRIC CO., MANSFIELD, OHIO.

Slow and medium speed multipolar **MOTORS and DYNAMOS** for belted or direct connected service. Automatic safety and limit switches. Automatic and reversing **CONTROLLERS** and reversing switches for **PUMP and ELEVATOR** equipment. Multipolar **Electroplating Dynamos**. Best on earth. WRITE FOR CATALOGUES.

### SALES AGENCIES:

15 Cortlandt Street, New York. 48 Wade Building, Cleveland, O. 1321 Stout Street, Denver, Colo. 109 N. 9th Street, Lincoln, Neb.  
1324 Marquette Building, Chicago. 810 Neave Building, Cincinnati, O. 470 Syndicate Arcade, Minneapolis, Minn. 1009 Texas Avenue, Houston, Texas.  
609 Smithfield Street, Pittsburgh, Pa. 43 Monroe Street, Memphis, Tenn. 169 W. Water Street, Milwaukee, Wis. 169 Elm Street, Dallas, Texas.  
341 Baronne Street, New Orleans, La.







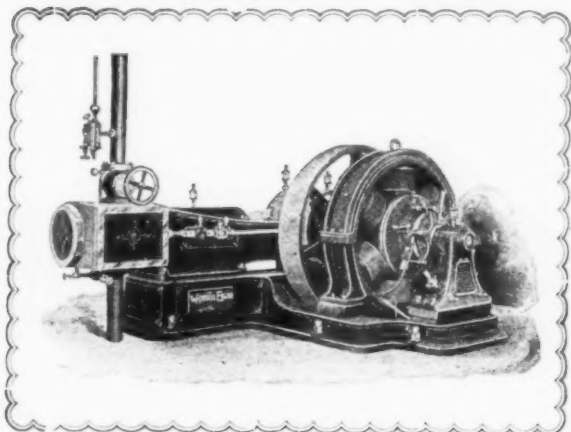
=  
D  
C

22  
V  
12

I

# DIRECT - - DYNAMO CONNECTED

For Lighting and Power.



The "WOOD" Dynamo embodies all the latest improvements in electrical machinery, among the most important being quick response to varying conditions of load, with sparkless commutation, voltage remaining constant, at the same time having highest attainable efficiency, generous commutator and brush surface permitting the use of carbon brushes, insuring long life.

## FORT WAYNE ELECTRIC CORPORATION

FORT WAYNE, INDIANA.

### BRANCH OFFICES:

|                                        |                                     |
|----------------------------------------|-------------------------------------|
| New York City, 115 Broadway.           | New Orleans, La., 715 Perdido St.   |
| Chicago, Ill., 621-625 Marquette Bldg. | Omaha, Neb., 1403 Farnam St.        |
| Philadelphia, Pa., 104 The Bourse.     | St. Paul, Minn., 207 Newspaper Row. |
| Boston, Mass., 17 Federal St.          | Cincinnati, O., 402 Neave Bldg.     |
| Rochester, N. Y., Powers Bldg.         | St. Louis, Mo., 321 Security Bldg.  |
| San Francisco, Cal., 18 Second St.     | Atlanta, Ga., 25 Marietta St.       |
| Pittsburgh, Pa., 918 Park Bldg.        |                                     |

Export Department, 115 Broadway, New York City.

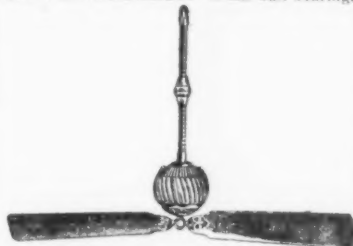
## BUYERS

OF ELECTRICAL MACHINERY

See our large ad in last and next issue.  
NORTHERN ELECTRICAL MFG. CO.  
MADISON, WIS.

## Standard Electric Ceiling Fans.

The most durable and most economical direct current fan on the market. It has ball bearings.



Manufactured by  
The ROBBINS & MYERS CO.  
SPRINGFIELD, OHIO.  
Agents wanted in unoccupied territory.

**CYPRESS WATER TANKS**  
Best in the World. Send for Catalogue.  
Write us for Delivered Prices.  
H. F. Lewis & Co. Ltd.  
NEW ORLEANS, La. 318 Baronne St.

## COMMERCIAL ELECTRIC CO.

INDIANAPOLIS, IND.

Manufacturers of **Electrical Machinery** FOR ALL PURPOSES.

## SMETHURST & ALLEN,

1370 BETZ BUILDING,  
PHILA., PA.  
Long Distance Telephone 4899.

**Electric Railway Contractors**

Complete Electric Light and Power Installations. Electric Railway Work a Specialty.



## The ORATOR

AND  
Improved Hunnings

solid back dust transmitters in Wall, Desk and Cabinet Styles. They are Convenient, Durable and the best of talkers.

A trial will convince anyone of their superiority on either short or long distance work.

Anyone can make an instrument that will work well at first, but to produce one that will continue to meet every proper demand is quite another problem.

The ORATOR will.

MANUFACTURED BY

The RAWSON ELECTRIC CO.

THE ORATOR.

ELVIRA, O., U. S. A.

"PURITY—SOLIDITY—DURABILITY."

## MITCHELL TEMPERED COPPER CO.

CORRY PA.

COMMUTATOR BARS AND SEGMENTS.

Heavy or Light Pure Copper Castings.

The Electrical Engineering & Supply Co.

Hunt Building, CHARLOTTE, N. C.

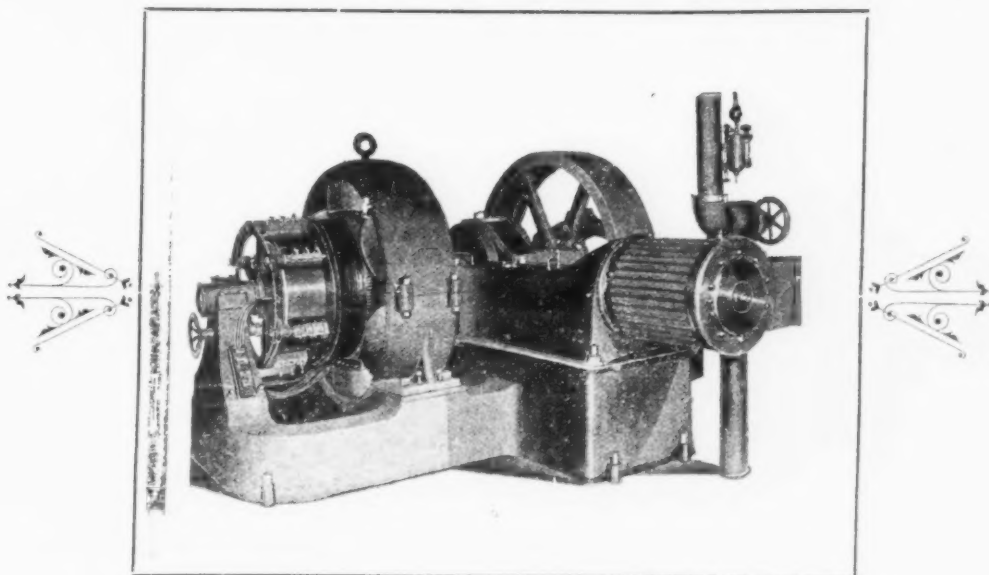
SOUTHERN ELECTRICAL ENGINEERS.

SHAWHAN-THRESHER ELECTRIC CO.

Electrical Engineers and Builders of Electrical Machinery,  
DAYTON, OHIO, U. S. A.

# ELECTRICAL EXHIBITION

Madison Square Garden, New York.



See our exhibit of a complete lighting and power plant, including an AMERICAN BALL ENGINE and DIRECT-CONNECTED GENERATOR, furnishing current for illuminated signs, and driving one of our MULTIPOLAR MOTORS.

~~~~~ THE ENTIRE EXHIBIT MANUFACTURED BY US. ~~~~~

AMERICAN ENGINE COMPANY, BOUND BROOK, N. J



WE CLAIM THE FOLLOWING MERITS FOR JENKINS BROS.' VALVES:

1. Manufactured of the best Steam Metal.
2. No regrinding, therefore not constantly wearing out the Seat of the Valves.
3. Contain JENKINS DISC, which is suitable for all Pressures of Steam, Oils and Acids.
4. The Easiest Repaired, and all parts Interchangeable.
5. Every Valve Tested before leaving the factory.
6. ALL GENUINE stamped with Trade-Mark.

JENKINS BROTHERS, New York, Philadelphia, Chicago, Boston.

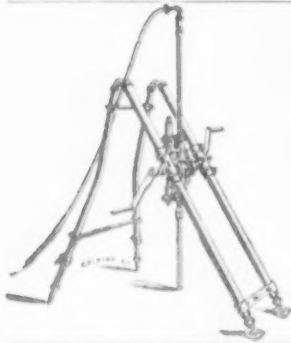
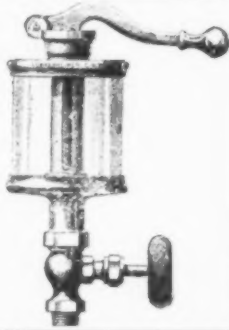
LUNKENHEIMER'S GLASS BODY OIL PUMP.

To obtain thorough lubrication, and as an auxiliary to the Sight Feed Lubricator, this pump will be found indispensable, especially before the engine starts running and the lubricator begins to work. Made in four sizes, holding $\frac{1}{4}$ pt., $\frac{1}{2}$ pt., 1 pt., 1 qt. Glass Body indicates stage of oil.

None as good as Lunkenheimer's, if you want the best. Every pump tested and warranted. Look for the name. In stock by dealers. Catalogue gratis.

THE LUNKENHEIMER COMPANY,

General Offices and Factories:
CINCINNATI, OHIO, U. S. A.
26 Cortlandt St., NEW YORK. 35 Great Dover St., LONDON, S. E.



Contractor for Prospecting

WITH AND SALE OF

DIAMOND DRILLS.

HOLES BORED

ANY DEPTH
ANY SIZE
AT ANY ANGLE
ANYWHERE

H. P. SIMPSON,

Scranton, Pa.

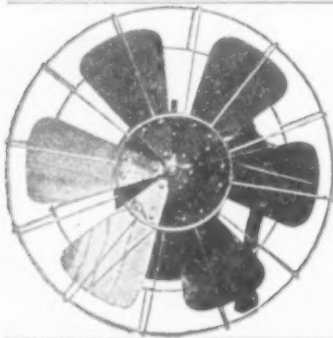
THE CINCINNATI SAFE AND LOCK CO.

—MANUFACTURERS OF—



BANK LOCKS AND VAULT WORK,
CINCINNATI.

Office and Factory, 59, 61, 63, 65 and 67 Elm Street.
G. V. HALLIDAY, President and Treasurer.



SOMETHING NEW! The Gem Water Motor Fan

Novel in Construction. As Easily
Installed as an Electric Fan Motor.
Discounts for Exclusive Agents.
Correspondence Solicited.

Simple. Effective. Economical. Noiseless.
LIST PRICE, \$10.00.

Just the thing for Supply Houses to Carry.

AGENTS WANTED,
THE SCHNEIDER MFG. CO., 1136 Hamilton Street,
CLEVELAND, O.

DIXON'S SILICA GRAPHITE PAINT

FOR TIN OR SHINGLE ROOFS AND IRON WORK. Tin roofs well painted have not required repainting for 10 to 15 years.
IT IS ABSOLUTELY WITHOUT AN EQUAL.

If you need any paint it will pay you to send for circular.

JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J.

Mileage.

We make the interesting claim that our Wheelbarrows foot up a larger total daily mileage than those of any other make. They last longer than any other Wheelbarrows, and we make more than any other maker.

THE KILBOURNE & JACOBS MFG. CO., Columbus, Ohio, U. S. A.

BUFFALO FORCE CO. AUTOMATIC ENGINES

New York Address: 26 CORTLAND STREET,
BUFFALO, N. Y.



For Stationary, Portable,
Traction Engines, Tugboats, &c.
Thoroughly Reliable—Perfectly Automatic.
JENKINS BROS., - Selling Agents,
NEW YORK, BOSTON, PHILA., CHICAGO.

We Do Not Claim

that our BRONZE BUSHINGS can be used under all circumstances and conditions without oil, but there are a million places where they can be so used. Are your bearings entirely satisfactory?

GRAPHITE LUBRICATING CO.

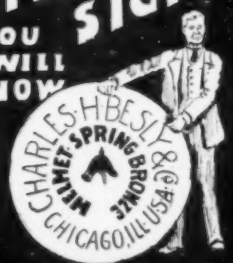
Box W, Bound Brook, N. J.

SELF-DUMPING COAL and ORE TUBS,

FOR
Contractors and Stevedores,
R. D. SEIDEL, Mfr.
Successor to Thos. L. Addison,
READING, PA.



BY
THIS
SIGN
YOU
WILL
KNOW



10-12 N CANAL ST.
C.H. BESLY & CO.
CHICAGO ILL. U.S.A.

SEND FOR 300 PAGE ILLUS. CATALOGUE

Air Compressors

For Every Application of
Compressed Air Power.
CLAYTON AIR COMPRESSOR WORKS
26 Cortlandt Street, NEW YORK.
Complete Catalogue upon application.

TANITE

Emery Grinding Machines
Emery Wheels Knife Sharpeners
Emery Whetstones Knife Grinders

THE TANITE CO.,
STROUDSBURG, PA.
161 WASHINGTON ST., NEW YORK.

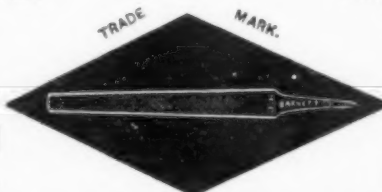
Black Diamond File Works.

Established 1863.

Incorporated 1895.

Twelve
Medals

Awarded at
International
Expositions.



Special
Prize
Gold
Medal

Atlanta 1895

Our goods are on sale in every leading Hardware Store
in the United States and Canada.

G. & H. BARNETT CO., Philadelphia, Pa.

H. STEVENS' SONS CO., Macon, Ga.

Manufacturers of

Sewer and R. R. Culvert Pipe,

Fire Brick, Milled Clay Fine Pipe and Chimney Tops,
Urns, &c. Correspondence solicited.
Awarded Gold Metal Cotton States and International Exposition, 1895.



HAINES, JONES & CADBURY Co.
PHILADELPHIA, PA.

MANUFACTURERS

HIGH CLASS PLUMBING GOODS.

ROOFING SLATE

Best Grades. Manufacturers' Prices. Prompt Shipments.
SLATINGTON-BANGOR SLATE SYNDICATE,
JAS. L. FOOTE, Gen'l Manager.

If you want Slate, much or little,
send your plans and we will return
them with bid, promptly.

MINERS, WHOLESALE DEALERS & EXPORTERS.
SLATINGTON, PA.

S

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s

s